Furbearer
Management Report
of survey-inventory activities
1 July 1997–30 June 2000

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Alaska Department of Fish and Game
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ADF&G

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# SPECIES MANAGEMENT REPORT

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# **FURBEARER MANAGEMENT REPORT**

From: 1 July 1997 To: 30 June 2000

## **LOCATION**

**GAME MANAGEMENT UNIT:** 12 (10,000 mi<sup>2</sup>) and 20E (11,000 mi<sup>2</sup>)

GEOGRAPHIC DESCRIPTION: Upper Tanana, White, Fortymile, Ladue, and Charley River

drainages

# **BACKGROUND**

Historically, furbearer trapping has been an important part of the economy in eastern Interior Alaska. Between the early 1900s and 1920, trapping supplemented income of miners and Alaska Natives. The gold rush ended during the 1920s and most of the miners moved out of the Fortymile area. However, trapping still augmented incomes for many area residents. Today, the economy of the area is primarily seasonal. Trapping continues to provide for subsistence use and additional income for local residents. However, the number of trappers has declined since 1997 due to reduced fur prices.

Marten and lynx are the most economically important furbearers in Units 12 and 20E. During population highs, muskrats are also economically and culturally important in Unit 12. Beavers are an important subsistence resource to Northway residents but are lightly trapped in most of the area. Little trapping effort is expended on coyotes, red foxes, mink, river otters, ermine, red squirrels, or wolverines because of low pelt values, low abundance, or difficulty and expense of trapping. Wolves are discussed in a separate management report.

## MANAGEMENT DIRECTION

## MANAGEMENT GOALS

- > Provide an optimal harvest of furbearers.
- > Provide the greatest opportunity to participate in hunting and trapping furbearers.

## MANAGEMENT OBJECTIVES

Maintain accurate annual harvest records based on sealing documents.

As new research and management findings become available, develop specific population and harvest objectives for furbearers.

## **METHODS**

#### HARVEST

We obtained annual harvest estimates from sealing certificates. Information collected during the sealing process included location, date, method of take, sex, and age (young-of-the-year or adult). Sealing of pelts was mandatory for wolverines, lynx, river otters, and beavers. Annual harvest estimates for beaver and otter included a subjective estimate of unreported take because some pelts were used in the trappers' homes and were not sealed. Harvest trend was also obtained from the Raw Fur Skin Export Report, a record of all furbearer pelts exported from Alaska. Harvest data were summarized by regulatory year (RY = 1 Jul through 30 Jun, e.g., RY99 = 1 Jul 1999 through 30 Jun 2000).

## POPULATION STATUS AND TREND

We used several methods to obtain estimates of furbearer population abundance, trend, and distribution. These methods included 1) trapper interviews, 2) a statewide trapper questionnaire, and 3) field observations by Fish and Game personnel. The best information about overall furbearer abundance and trapping pressure was collected during interviews with long-term trappers and pilots. During 1995 through 1997, lynx and snowshoe hare population trends were monitored using an aerial survey technique (M McNay, ADF&G, unpublished data). We begin monitoring snowshoe hare and lynx population trends and distribution again in winter 2000–2001. Lynx population trend was also assessed by evaluating age structure, pregnancy rate, and body condition of harvested lynx.

We estimated the proportion of kits in the harvest for beavers and lynx by using pelt measurements from the sealing certificates. Beaver pelts <53 inches (length plus width) (Buckley and Libby 1953) and lynx pelts <35 inches long (Stephenson 1988) were accepted standards for kits. Some overlap exists between pelt lengths of lynx kits and yearlings but I did not attempt to determine the extent of overlap.

## **RESULTS AND DISCUSSION**

## POPULATION STATUS AND TREND

Lynx

Based on track surveys, harvest data (Tables 1 and 2), and comments from area trappers, the last 2 lynx population cyclic highs in Units 12 and 20E occurred during 1990–1992 and 1997–1999. During these cycles, high kitten production was first reflected in the harvest 3–4 years prior to population highs. Kitten production remained high for 5 years during the early 1990s lynx cycle and for 6 years during the late 1990s lynx cycle. Years of high kitten production corresponded with years of high snowshoe hare numbers. The proportion of kittens in the harvest declined substantially in 1991 and 1992 in Units 12 and 20E, respectively. The lynx population declined to a low level in 1993. Snowshoe hare numbers began increasing in 1993, resulting in increased

lynx kitten production and survival beginning in 1994. Increased numbers of lynx were noticeable by 1995. The increasing phase in both snowshoe hare and lynx numbers were earlier than expected based on an historical 10-year cycle. Preliminary data suggest kitten production and survival were low in Units 12 and 20E during 2000 following a reduction in snowshoe hare numbers. Lynx numbers are expected to decline substantially in 2001.

## Wolverine

Wolverines were abundant in Units 12 and 20E during the 1960s, corresponding to a period of high ungulate and wolf densities. According to the area's long-term trappers, the wolverine population decline during the 1970s and 1980s coincided with a decline in moose and caribou numbers. During RY97–RY99, wolverines were common only in the mountainous habitats of Unit 12. Unlike Unit 20E, large populations of ground squirrels inhabited this area. There were also high populations of Dall sheep, and small numbers of caribou and moose that ensured a stable amount of carrion available to wolverines. Ungulate carrion and ground squirrels are important foods for wolverines in other areas of Alaska (Gardner 1985). Based on trapper questionnaires and incidental observations, the wolverine population increased in other areas of Unit 12 due to the increased availability of carrion as a result of thousands of Nelchina caribou wintering throughout the unit between 1990 and 1997 and in Unit 20E likely due to the increasing Fortymile caribou herd and 15,000–25,000 Nelchina caribou wintering in the area since 1998.

## Marten

Marten populations declined after reaching a high in 1987 and remained low through 1992. Beginning in 1993, trapper observations and incidental sightings by department personnel indicated the marten population increased in Units 12 and 20E. Marten were common in 1995 and 1996 but appeared to have declined in 1997. In 1997, they were common in localized areas but were uncommon in many areas of suitable habitat. Trappers who took most of the RY97 harvest reported taking few juveniles. Marten numbers have remained low through RY00. Factors that may have limited marten population growth were reduced microtine populations and increased avian predators. Observations by long-term trappers in eastern Alaska and adjacent Yukon Territory, Canada indicate that marten numbers decline when numbers of hares, lynx, and raptors are high (unpublished data). Low availability of microtines may affect marten natality rates and kit survival.

Incidental observations by department personnel and trappers indicate that microtine numbers increased and numbers of avian predators declined during RY00. Due to increasing prey base and declining predators, marten numbers are expected to increase during RY01.

Historically in Units 12 and 20E marten trapping contributed most of the income for area trappers. During RY97–RY99 that was still the case, but many trappers did not trap or reduced their trapping effort because of low marten availability and reduced raw fur price.

## Red Fox

Trapper interviews, questionnaires, and incidental sightings by department personnel indicate fox numbers declined during 1993 and 1994 in both units. During those years, most of the foxes'

main prey populations were depressed (i.e., grouse, ptarmigan, snowshoe hares and microtines). Fox numbers increased substantially in 1995 and remained at high levels until fall 2001 due primarily to increased number of snowshoe hares. Fox numbers declined substantially during the winter of RY00 subsequent to the snowshoe hare decline. During RY97–RY99, there was little trapper demand for foxes because of the low market value.

## Muskrat

The Northway–Tetlin Flats have been one of the most productive muskrat trapping areas in Alaska. Muskrat populations were high and were heavily trapped during the mid 1970s and mid 1980s. Between 1990 and 1992, muskrats were at low levels in both units and there was little trapper effort. Based on observations by trappers from Northway, muskrats seemed to increase in 1993 in the Northway Flats, and village residents increased trapping pressure. Extreme cold temperatures and lack of snow in 1995 and several years of drought subsequently caused the muskrat population to decline to low levels. Muskrat numbers remained low through 1999. During summer 2000, above normal rainfall caused high lake levels, and incidental sighting during aerial and ground surveys for other species indicated muskrat numbers increased throughout the lake systems in Units 12 and 20E.

# Coyote

Coyote numbers increased in both units between the late 1980s and early 1990s and reached high numbers in certain areas, especially southeastern Unit 12. Coyotes declined following winter 1992 and have remained scarce throughout most of Units 12 and 20E. Based on trapper reports, coyote numbers increased in southeastern Unit 12 subsequent to the high snowshoe hare cycle during 1997–2000. Incidental sightings and trapper reports indicate coyote numbers declined during fall and winter 2000. There is little trapper demand for coyotes because of their low market value. Local residents have harvested high numbers of coyotes where they are abundant.

#### Beaver

During RY97–RY99 beavers were scarce to common in suitable lowland habitats in both units. Beaver numbers declined following severe freezing conditions during winter 1995. During late summer 1997, high water washed out many beaver houses located on rivers. Discussions with area trappers indicate subsequent beaver population growth was limited and remained at low levels. There was little trapper demand for beavers in Unit 20E. In Unit 12 many Northway trappers selectively trapped for beavers in the Northway Flats during spring.

# Other Species

Trapper questionnaire results and sightings by area pilots and department personnel indicated that otters were uncommon in both Units 12 and 20E, and ermine and red squirrel were common and stable. Mink numbers seemed to have increased along the Tanana River but overall are scarce in both units. There was little trapper demand for these species. Trappers also were asked about prey species. Respondents listed hares as common during 1998 through spring 2000. Ptarmigan were common until spring 2000. All 3 grouse species declined substantially during 1999 and currently are at low levels. Microtines were thought to have declined during 1997 and

remained stable through 1999. Incidental reports indicate that microtine numbers increased during 2000.

## **MORTALITY**

Harvest

# Hunting Seasons and Bag Limits, Units 12 and 20E.

Coyote	1 Sep-30 Apr	10 coyotes
Red Fox	1 Sep–15 Mar	2 foxes
Lynx	1 Nov-31 Jan	2 lynx
Squirrel	No closed season	No limit
Wolverine	1 Sep–31 Mar	1 wolverine

# Trapping Seasons and Bag Limits, Units 12 and 20E.

Beaver	1 Nov-15 Apr	15 beavers-Unit 12
		25 beavers-Unit 20E
Coyote	15 Oct-28 Feb	No limit
Red Fox	1 Nov-28 Feb	No limit
Lynx	1 Dec-15 Feb	No limit <sup>a</sup>
Marten	1 Nov-28 Feb	No limit
Mink/Weasel	1 Nov-28 Feb	No limit
Muskrat	20 Sep-10 Jun	No limit
River Otter	1 Nov-15 Apr	No limit
Squirrel/marmot	No closed season	No limit
Wolverine	1 Nov–28 Feb	No limit

<sup>&</sup>lt;sup>a</sup> Lynx trapping season is determined annually based on lynx population trend.

Board of Game Actions and Emergency Orders. The Board of Game adopted a regulation during spring 1992 which allowed the department to annually set the lynx season independent of the board process for Interior Units 12, 20, and 25C. This action enhanced our ability to apply the lynx tracking harvest strategy (Stephenson 1988) that was adopted as board policy in 1987. That strategy was designed to protect lynx populations during the low part of the population cycle to allow for a more rapid and larger growth phase. In spring 1998 the Alaska Board of Game changed the coyote hunting bag limit to 10 coyotes, however no more than 2 could be taken before 1 October. In spring 2000 the board extended the lynx season in Units 12 and 20E to 15 March and changed the November bag limit to 5 lynx.

# Hunter/Trapper Harvest.

Lynx — The lynx trapping seasons were adjusted annually by emergency orders issued by the department after evaluating current lynx and snowshoe hare population trends as part of the lynx harvest tracking system. The lynx trapping season was 1 December–15 February in RY97, 1 December–28 February in RY98 and RY99, and 1 November–15 March in RY00.

During RY97–RY99, the lynx harvest in Unit 12 ranged from 221 to 353 (Table 1), exceeding any 3-year total since RY77. Lynx pelt prices have been low since RY91 and have not influenced harvest levels. The percentage of kittens in the harvest ranged between 19% and 29% and declined each year. The number of trappers who reported harvesting lynx during RY97 through RY99 was lower ( $\bar{x}=33$  successful trappers) compared to the last lynx population high during 1990–1992 ( $\bar{x}=44$  successful trappers) but their catch rate was more than twice as high (8.7 lynx/trapper compared to 4.1). The number of lynx trapped in December declined when the lynx season was lengthened in RY98 to include all of February. The longer season allowed trappers to be more relaxed in setting out their lynx lines, trap when days were longer, and possibly select for better fur quality compared to December (Table 3). Most trappers used snowmachines for transportation (83–92%; Table 4) and used leg-hold traps (65–93%) to catch lynx.

During RY97–RY99, 12–19 trappers reported taking 82–116 lynx (4.3–8.5 lynx/trapper) in Unit 20E (Table 2). This was comparable to harvest during the 1990–1992 lynx population high. The percentage of kittens in the harvest was 16–25%. Preliminary harvest data indicates the percentage of kittens in the RY00 harvest declined substantially. Most lynx were harvested with traps (55–71%). During RY97–RY99 the lynx season was extended to 28 February. Most harvest occurred in January; however, in RY98 the February harvest was similar to January's (Table 5). The primary transportation method was snowmachines (80–93%; Table 6).

The lynx decline following RY99 ends the first lynx cycle since implementing the tracking harvest strategy. It is difficult to determine the effects of this management program on Units 12 and 20E lynx numbers and harvest because we did not determine lynx population size during the past 2 population highs nor do we have methods to factor out other confounding variables such as habitat changes, snowshoe hare population trends, and trapper effort. If lynx harvest is used as an indicator, it would appear the strategy worked. In Unit 12 during the past lynx cycle, trappers enjoyed the highest catch during the 3 population peak years (898 lynx) since at least 1970. Also the lynx harvest during RY94–RY99 (low to high cycle) under the strategy was 1193 lynx compared to the harvest of 841 lynx during the previous cycle (RY86–RY92) when the seasons were much more liberal. Fur price was probably not a factor influencing the higher harvest because it had been low since 1992. Trapper effort does not appear to explain the difference, as fewer trappers reported taking more lynx during the cycle when the strategy was applied. These trends also hold true in Unit 20E but the harvest was lower due to less trapping pressure.

Before we begin to restrict seasons during the low phase of the next lynx cycle, I recommend we analyze the harvest data from the Interior units to which the tracking strategy was applied to see if there are any trends we can show trappers indicating the effects of the program. In general, trappers support the lynx tracking harvest strategy during the lynx population lows but have more difficulty understanding it when the lynx population begins to increase. We need to educate trappers about the benefits of the lynx tracking strategy so we will be assured of their continued support even if lynx prices go up while seasons are restricted. In doing so, we will maintain future trapper support for the lynx management program because trappers will understand that in exchange for reduced lynx trapping opportunity during the population lows and initial recovery phases they will likely have higher catches during the population highs.

Wolverine — During RY97–RY99, the wolverine harvest in Units 12 ranged from 18–30 and in 20E ranged from 3–8 (Tables 1 and 2). The Unit 12 harvest was the highest 3-year total during the past 14 years. Most of the harvest in Unit 12 occurred in mountainous areas along the western and southern boundaries. Fur price influenced several trappers to select for wolverines in this area. The wolverine harvest in Unit 20E has been relatively stable since 1986. Annual harvest was not concentrated in any specific geographic area, but a few wolverines were captured in most areas where trapping occurred. This indicated the wolverine population was distributed at low density across the area. Males composed 66% (range = 56–72%) and 67% (all 3 years combined) of the harvest during RY97–RY99in Units 12 and 20E, respectively.

Beaver — Interest in beaver trapping varied during RY97–RY99in Unit 12. Fur price was low but most of the harvest was by Northway residents who trapped beavers more for food and handicrafts than to sell raw (Table 1). Beaver harvest in Unit 20E is historically low (Table 2). Most harvest was along the Yukon River by residents of Eagle who use beavers as food or for making handicrafts.

Otter — Otter populations in both Units 12 and 20E were low due to a lack of suitable habitat. Trappers seldom selected for otters due to low fur prices and the difficulty of catching them. During the past 14 years, an average of 4 otters have been taken annually in Unit 12 (Table 1), and only 3 otters have been trapped in Unit 20E (Table 2).

#### **HABITAT**

## Assessment and Enhancement

Prior to the mid 1990s, 30 years of strict fire suppression activities in Units 12 and 20E created an older, less diverse mosaic of habitats than would have existed under a natural fire regime. Lack of early-to-medium-aged seral habitats may have limited snowshoe hare and microtine numbers, and ultimately, lynx, marten, and other species. There are several large areas of medium-aged seral habitats created by wildfire in Unit 20E. Incidental sightings and trapping records indicate that snowshoe hare and lynx numbers were higher in these areas compared to the remainder of Unit 20E. Three prescribed burns totaling 96,000 acres were ignited in Unit 20E during 1998 and 1999 and over 300,000 acres burned in wildfires during 1999. These areas should become prime habitat for microtines within 5 years and snowshoe hares within 10 years and will ultimately benefit all furbearers. In Unit 12 about 97,000 acres burned in 1990 creating early succession habitat along the Tok River. Snowshoe hares and microtines were common in the burned area within 5-7 years. Foxes, coyotes, lynx, and marten have been observed and trapped within this area since 1997. Over 1000 acres of the Tok River valley is planned to be logged over the next 10 years. The Division of Wildlife Conservation is working with Division of Forestry in planning postlogging treatment to benefit wildlife habitat regeneration that should benefit furbearers.

The Alaska Interagency Fire Management Plan for the Upper Tanana area currently guides wildfire suppression activities. Under this plan, a more natural fire regime will be restored to the area and will eventually improve habitat heterogeneity. All land-managing agencies agreed to the plan. Having a more diverse mosaic of habitats should benefit all furbearer species.

## CONCLUSIONS AND RECOMMENDATIONS

The management objective to maintain accurate annual harvest records based on sealing documents was met during RY97–RY99. The management objective to develop specific population and harvest objectives for furbearers as new research and management findings become available was also met.

Trapping is important to many local residents to supplement their income, obtain food, or obtain fur for handicrafts. Most of the local trappers have a long history of trapping in the area ( $\bar{x}=19$  years) and have developed extensive lines ( $\bar{x}=50$  miles) with 50 to 400 traps. The fur market primarily drives trapper effort. Local trappers are able to conserve the furbearer populations along their lines because other local trappers respect most established traplines and there is little use of the area by nonlocal trappers. Furbearer populations are heavily exploited along the road system, especially marten, lynx, and fox. Trappers consider public road corridors open lines, which has created intense competition and overexploitation in some areas especially during years of high fur prices.

Trapping effort was not directly measured. However, information collected from sealing data, trapper questionnaires, and discussions with area trappers indicated that trapping effort declined since 1997 due to low pelt prices. However, lynx harvest increased in Units 12 and 20E and wolverine harvest increased in Unit 12. The increase in wolverine harvest was due to several trappers selecting for wolverine due to wolverine's high market value. Lynx harvest increased substantially apparently due to a very high lynx population. The effect of the lynx tracking harvest strategy on the lynx population and harvest was not evaluated but high harvest levels indicate it may have been a benefit. Trapping pressure was low on wolverine, beaver, otter, muskrat, coyote, and fox during RY97–RY99.

In most years marten were the most sought after furbearer in both units. Low price and reduced marten numbers caused a reduction in trapper effort during RY97–RY99. Incidental observations during RY00 indicate that avian predators of marten declined and microtine populations increased. Therefore, I expect marten numbers to increase in Units 12 and 20E in 2001. There is no need for changes in the season length, bag limits, or methods and means of harvest.

Historically, lynx were trapped intensively during periods of high fur price and population highs in Units 12 and 20E. During RY97–RY99 lynx numbers were high in both units and the fur price was below normal. Incidental observations and trapper interviews indicate the snowshoe hare population declined substantially in spring 2000 and preliminary harvest data indicate few lynx kittens were available during the RY00 trapping season. I expect the lynx population to decline rapidly during 2001 and 2002 and the season length to be reduced in RY02. Prior to continuing the strategy for another lynx cycle, I recommend we discuss with the trappers the benefits and effects of the program to further evaluate their support.

Wolverines declined during the 1960s and were stable at low levels in both units throughout the 1970s and 1980s (Kelleyhouse 1990). Ungulate food resources for wolverine increased in Unit 20E and wolverine numbers appear to be increasing slowly. In Unit 12 wolverine numbers probably increased during the early to mid-1990s due to the Nelchina and Mentasta caribou herds wintering in the unit. Wolverine reproductive rates are dependent on food availability

(Magoun 1985). I believe wolverine numbers have increased because of increased food availability in both units. Most area trappers do not select for wolverines but will set for them if they see enough sign. Based on population trend and traditional trapping practices, further restricting the wolverine trapping seasons in Units 12 and 20E is not necessary.

All other furbearer populations were fluctuating within their historical levels and do not warrant changes in seasons and bag limits or methods and means.

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Table 1 Unit 12 beaver, lynx, otter, and wolverine harvest, regulatory years 1986–1987 through 1999–2000

Species/			Rep	orted harve	est									Successful
Regulatory		Sex			Age		Estimated l	narvest		Method	of take		Total	trappers/
year	M	F	Unk	Juv <sup>a</sup>	Adults	Unk	Unreported	Illegal	Trap/snare	Shot	L&S <sup>b</sup>	Unk	harvest	hunters
Beaver														
1986–1987	0	0	55	5	50	0	20	0	44	3	0	8	75	16
1987-1988	0	0	18	5	13	0	20	0	18	0	0	0	38	6
1988-1989	0	0	15	2	13	0	20	0	15	0	0	0	35	7
1989-1990	0	0	14	3	11	0	20	0	13	0	0	1	34	5
1990-1991	0	0	19	6	12	1	20	0	18	0	0	1	39	7
1991-1992	0	0	40	10	30	0	20	0	36	0	0	4	60	11
1992-1993	0	0	34	1	33	0	20	0	34	0	0	0	54	6
1993-1994	0	0	35	2	32	1	20	0	34	0	0	1	55	11
1994-1995	0	0	26	0	26	0	20	0	26	0	0	0	46	6
1995-1996	0	0	14	7	7	0	20	0	14	0	0	0	34	4
1996-1997	0	0	27	6	20	1	20	0	26	0	0	1	47	6
1997-1998	0	0	40	9	31	0	20	0	40	0	0	0	60	9
1998-1999	0	0	19	1	18	0	20	0	19	0	0	0	39	4
1999–2000	0	0	10	2	8	0	20	0	10	0	0	0	30	3
<u>Lynx</u>														
1986–1987	0	0	80	11	69	0	0	0	78	0	0	2	80	32
1987-1988	0	0	74	21	53	0	0	0	72	2	0	0	74	35
1988-1989	0	0	70	13	57	0	0	0	65	5	0	0	70	29
1989-1990	0	0	78	18	60	0	0	0	74	3	0	1	78	28
1990-1991	0	0	133	23	110	0	0	0	131	2	0	0	133	40
1991-1992	0	0	174	6	163	5	0	0	170	4	0	0	174	49
1992-1993	0	0	232	5	227	0	0	0	218	6	0	8	232	43
1993-1994	0	0	121	2	117	2	0	0	103	3	0	15	121	28
1994-1995	0	0	89	12	75	2	0	0	85	3	0	1	89	23
1995-1996	0	0	42	11	31	0	0	0	40	2	0	0	42	10
1996-1997	0	0	164	40	121	3	0	0	158	2	0	4	164	32
1997-1998	0	0	353	103	233	17	0	0	351	2	0	0	353	37
1998-1999	0	0	324	73	237	14	0	0	319	5	0	0	324	28
1999–2000	0	0	221	42	179	0	0	0	216	5	0	0	221	33

Species/			Repo	rted harve	est									Successful
Regulatory		Sex			Age		Estimated l	narvest		Method	of take		Total	trappers/
year	M	F	Unk	Juv <sup>a</sup>	Adults	Unk	Unreported	Illegal	Trap/snare	Shot	L&S <sup>b</sup>	Unk	harvest	hunters
Otter														
1986-1987	2	2	0	0	0	4	3	0	4	0	0	0	7	3
1987-1988	1	8	1	0	0	10	3	0	7	3	0	0	13	5
1988-1989	2	0	0	0	0	2	3	0	2	0	0	0	5	2
1989-1990	0	0	0	0	0	0	3	0	0	0	0	0	3	0
1990-1991	1	0	0	0	0	1	3	0	1	0	0	0	4	1
1991-1992	0	0	6	0	0	6	3	0	6	0	0	0	9	4
1992-1993	3	3	2	0	0	8	3	0	6	1	0	1	11	6
1993-1994	0	0	0	0	0	0	3	0	0	0	0	0	3	0
1994-1995	3	3	0	0	0	6	3	0	6	0	0	0	9	3
1995-1996	2	2	0	0	0	4	3	0	2	2	0	0	7	3
1996-1997	2	1	2	0	0	5	3	0	4	1	0	0	8	4
1997-1998	0	0	1	0	0	1	3	0	1	0	0	0	4	1
1998-1999	0	0	5	0	0	5	3	0	4	1	0	0	8	3
1999–2000	4	0	0	0	0	4	3	0	4	0	0	0	7	4
Wolverine														
1986–1987	18	14	0	0	0	32	0	0	27	2	0	3	32	15
1987-1988	13	5	1	0	0	19	0	0	18	0	1	0	19	12
1988-1989	9	5	0	0	0	14	0	0	10	4	0	0	14	8
1989-1990	8	4	0	0	0	12	0	0	10	0	0	2	12	11
1990-1991	13	1	0	0	0	14	0	0	14	0	0	0	14	8
1991-1992	16	10	1	0	0	27	0	0	25	2	0	0	27	16
1992-1993	9	5	0	0	0	14	0	0	14	0	0	0	14	10
1993-1994	15	3	3	0	0	21	0	0	19	2	0	0	21	15
1994-1995	12	9	0	0	0	21	0	0	21	0	0	0	21	12
1995-1996	4	3	0	0	0	7	0	0	6	1	0	0	7	7
1996-1997	8	2	1	0	0	11	0	0	11	0	0	0	11	8
1997-1998	13	4	1	0	0	18	0	0	18	0	0	0	18	11
1998-1999	18	8	0	0	0	26	0	0	24	2	0	0	26	15
1999-2000	17	12	1	0	0	30	0	0	27	3	0	0	30	13

<sup>&</sup>lt;sup>a</sup> Beavers ≤52"; lynx ≤35" in length.

<sup>b</sup> L&S (land and shoot) refers to animals taken by hunters the same day hunters were airborne.

Table 2 Unit 20E beaver, lynx, otter, and wolverine harvest, regulatory years 1986–1987 through 1999–2000

Species/			Rep	orted harve	est									Successful
Regulatory		Se	X		Age		Estimated 1	narvest		Method	of take		Total	trappers/
year	M	F	Unk	Juv <sup>a</sup>	Adults	Unk	Unreported	Illegal	Trap/snare	Shot	L&S <sup>b</sup>	Unk	harvest	hunters
Beaver									•					
1986–1987	0	0	5	0	5	0	5	0	1	0	0	4	10	2
1987-1988	0	0	3	0	3	0	5	0	3	0	0	0	8	1
1988-1989	0	0	1	0	1	0	5	0	1	0	0	0	6	1
1989-1990	0	0	3	0	3	0	5	0	3	0	0	0	8	2
1990-1991	0	0	3	0	3	0	5	0	3	0	0	0	8	2
1991-1992	0	0	10	0	10	0	5	0	10	0	0	0	15	5
1992-1993	0	0	6	1	5	0	5	0	6	0	0	0	11	3
1993-1994	0	0	9	0	9	0	5	0	9	0	0	0	14	2
1994–1995	0	0	0	0	0	0	5	0	0	0	0	0	5	0
1995-1996	0	0	5	1	4	0	5	0	5	0	0	0	10	2
1996–1997	0	0	3	0	3	0	5	0	2	1	0	0	8	1
1997–1998	0	0	0	0	0	0	5	0	0	0	0	0	5	0
1998–1999	0	0	1	0	1	0	5	0	1	0	0	0	6	1
1999–2000	0	0	11	3	8	0	5	0	11	0	0	0	16	3
<u>Lynx</u>														
1986-1987	0	0	11	0	11	0	0	0	11	0	0	0	11	5
1987–1988	0	0	9	3	6	0	0	0	9	0	0	0	9	5
1988-1989	0	0	25	7	18	0	0	0	25	0	0	0	25	10
1989-1990	0	0	29	10	19	0	0	0	29	0	0	0	29	12
1990–1991	0	0	70	19	51	0	0	0	68	2	0	0	70	22
1991–1992	0	0	113	16	96	1	0	0	111	0	0	2	113	14
1992–1993	0	0	97	3	89	5	0	0	93	3	0	1	97	21
1993-1994	0	0	46	1	45	0	0	0	46	0	0	0	46	11
1994–1995	0	0	23	3	20	0	0	0	23	0	0	0	23	7
1995–1996	0	0	28	4	24	0	0	0	27	1	0	0	28	8
1996–1997	0	0	33	7	25	1	0	0	33	0	0	0	33	9
1997–1998	0	0	102	25	77	0	0	0	102	0	0	0	102	12
1998–1999	0	0	116	18	98	0	0	0	111	3	0	2	116	16
1999–2000	0	0	82	18	54	10	0	0	77	5	0	0	82	19

Species/			Repo	rted harve	est									Successful
Regulatory		Sex	ζ.		Age		Estimated 1	narvest		Method			Total	trappers/
year	M	F	Unk	Juv <sup>a</sup>	Adults	Unk	Unreported	Illegal	Trap/snare	Shot	L&S <sup>b</sup>	Unk	harvest	hunters
Otter														
1986–1987 <sup>c</sup>														
1987–1988 <sup>c</sup>														
1988–1989 <sup>c</sup>														
1989–1990 <sup>c</sup>														
1990–1991 <sup>c</sup>														
1991-1992		1		0	0	1	0	0	1	0	0	0	1	0
1992–1993 <sup>c</sup>														0
1993-1994	1	0		0	1	0	0	0	0	1	0	0	1	1
1994-1995	1	0	0	0	0	1	0	0	1	0	0	0	1	1
1995–1996 <sup>c</sup>														
1996–1997 <sup>c</sup>														
1997–1998 <sup>c</sup>														
1998–1999 <sup>c</sup>														
1999–2000°														
Wolverine														
1986–1987	5	5	0	0	0	10	0	0	8	0	0	2	10	9
1987–1988	5	2	0	0	0	7	0	0	5	0	0	2	7	6
1988-1989	1	0	0	0	0	1	0	0	1	0	0	0	1	1
1989-1990	10	4	0	0	0	14	0	0	14	0	0	0	14	11
1990-1991	3	1	0	0	0	4	0	0	4	0	0	0	4	4
1991-1992	5	4	0	0	0	9	0	0	8	0	0	1	9	7
1992-1993	3	2	0	0	0	5	0	0	5	0	0	0	5	5
1993-1994	7	3	0	0	0	10	0	0	10	0	0	0	10	5
1994–1995	4	3	0	0	0	7	0	0	7	0	0	0	7	5
1995–1996	3	1	0	0	0	4	0	0	4	0	0	0	4	4
1996–1997	6	0	0	0	0	6	0	0	5	1	0	0	6	6
1997–1998	4	0	4	0	0	8	0	0	8	0	0	0	8	6
1998–1999	6	1	0	0	0	7	0	0	5	2	0	0	7	5
1999–2000	2	1	0	0	0	3	0	0	3	0	0	0	3	3

<sup>&</sup>lt;sup>a</sup> Beavers ≤52"; lynx ≤35" in length.

<sup>&</sup>lt;sup>b</sup> L&S (land and shoot) refers to animals taken by hunters the same day hunters were airborne. <sup>c</sup> No reported harvest.

Table 3 Unit 12 beaver, lynx, otter, and wolverine reported harvest<sup>a</sup> chronology by month, regulatory years 1986–1987 through 1999–2000

~							
Species/			TT	4			
Regulatory	Sep/Oct	Nov	Dec	est perio	Feb	Mar	Λ
year	Sep/Oct	NOV	Dec	Jan	гев	IVIai	Apr
Beaver	0	7	7	2	7	26	
1986–1987	0	7	7	2	7	26	6
1987–1988	0	9	0	0	0	7	2
1988–1989	0	6	2	0	2	5	0
1989–1990	0	9	1	0	0	4	0
1990–1991	0	1	0	1	9	6	1
1991–1992	0	4	4	0	1	9	18
1992–1993	0	7	6	1	0	10	5
1993–1994	0	13	4	0	3	3	5
1994–1995	0	0	0	2	2	17	5
1995–1996	0	0	2	0	1	7	0
1996–1997	0	2	4	3	7	11	0
1997–1998	0	0	2	4	3	31	0
1998–1999	0	0	0	0	0	12	7
1999–2000	0	0	0	0	0	3	0
_							
<u>Lynx</u>		_					
1986–1987	0	7	46	27	0	0	0
1987–1988	0	0	34	34	1	0	0
1988–1989	0	2	34	25	2	0	0
1989–1990	0	3	51	23	0	0	0
1990–1991	0	4	36	90	0	0	0
1991–1992	0	33	58	79	4	0	0
1992–1993	0	45	78	71	32	0	0
1993–1994	0	1	47	56	2	0	0
1994–1995	0	0	49	37	0	0	0
1995–1996	0	0	12	30	0	0	0
1996–1997	0	1	87	73	0	0	0
1997–1998	0	1	97	161	94	0	0
1998–1999	0	3	71	109	141	0	0
1999–2000	0	1	34	95	89	2	0
Otton							
Otter 1986–1987	0	0	0	0	2	2	0
	0		0	0	2	2	0
1987–1988	0	0	0	0	0	0	0
1988–1989	0	0	1	0	0	0	1
1989–1990	0	0	0	1	0	0	0
1990–1991	0	0	0	0	0	1	0
1991–1992	0	0	0	1	4	0	0
1992–1993	1	0	0	2	1	3	0

Species/							
Regulatory			Harv	est perio	ods		
year	Sep/Oct	Nov	Dec	Jan	Feb	Mar	Apr
1993–1994	0	0	0	0	0	0	0
1994–1995	0	0	5	1	0	0	0
1995–1996	1	0	2	1	0	0	0
1996–1997	0	0	3	2	0	0	0
1997–1998	0	0	0	0	0	1	0
1998–1999	0	0	0	0	0	0	0
1999–2000	0	0	0	1	3	0	0
<b>Wolverine</b>							
1986–1987	0	1	2	5	9	4	0
1987–1988	4	1	1	4	4	0	0
1988–1989	0	1	1	4	4	0	0
1989–1990	0	1	3	6	0	0	0
1990-1991	0	1	3	4	6	0	0
1991–1992	1	2	6	8	10	0	0
1992–1993	0	2	4	3	5	0	0
1993-1994	1	1	2	7	10	0	0
1994–1995	0	2	2	10	7	0	0
1995–1996	0	1	1	1	3	1	0
1996–1997	0	0	1	1	8	1	0
1997–1998	0	3	3	7	5	0	0
1998–1999	2	1	6	4	13	0	0
1999–2000	1	0	7	7	15	0	0

<sup>&</sup>lt;sup>a</sup> Unknown not included.

Table 4 Unit 12 harvest percent by transport method, regulatory years 1986–1987 through 1999–2000

			На	arvest percent b	by transport method	l		
Species/		Dogsled,						
Regulatory		Skis,		3- or			Highway	
year	Airplane	Snowshoes	Boat	4-wheeler	Snowmachine	ORV	vehicle	Unknown
<u>Beaver</u>								
1986-1987	0	20	0	0	56	0	7	16
1987-1988	0	28	0	0	56	0	17	0
1988-1989	0	0	0	0	73	0	27	0
1989-1990	0	0	0	0	93	0	0	7
1990-1991	0	0	0	0	47	0	5	47
1991–1992	0	3	0	0	68	0	0	30
1992-1993	0	0	38	0	62	0	0	0
1993-1994	0	0	14	0	49	0	20	17
1994–1995	0	15	19	0	65	0	0	0
1995-1996	0	21	0	0	14	0	29	36
1996-1997	0	26	0	0	70	0	0	4
1997–1998	0	8	20	0	73	0	0	0
1998–1999	0	27	0	0	63	0	0	0
1999–2000	0	0	40	0	50	0	10	0
<u>Lynx</u>								
1986–1987	0	1	0	0	85	0	10	4
1987–1988	3	5	0	0	74	0	7	11
1988–1989	1	1	0	0	86	0	11	0
1989–1990	4	10	0	0	82	0	0	4
1990–1991	2	5	0	0	89	0	2	3
1991–1992	0	1	0	0	83	1	12	3
1992–1993	0	1	0	0	88	0	8	4
1993–1994	0	4	0	0	84	0	3	8
1994–1995	1	4	0	0	81	0	7	6
1995–1996	2	2	0	0	93	0	2	0
1996–1997	1	4	0	0	94	0	3	3
1997–1998	0	0	0	1	94	0	5	0
1998–1999	0	3	0	0	83	0	14	0
1999–2000	0	2	0	0	92	0	5	0
2000	· ·	_	0	O .	/ <del>-</del>	0		•

	Harvest percent by transport method												
Species/ Regulatory	A 1	Dogsled, Skis,		3- or			Highway	TI					
year	Airplane	Snowshoes	Boat	4-wheeler	Snowmachine	ORV	vehicle	Unknown					
Otter													
1986–1987 <sup>a</sup>													
1987–1988 <sup>a</sup>													
1988–1989 <sup>a</sup>													
1989–1990 <sup>a</sup>													
1990–1991 <sup>a</sup>	0	0	0	0	100	0	0	0					
1991–1992	0	0	0	0	100	0	0	0					
1992–1993	0	0	38	0	50	0	0	13					
1993–1994 <sup>a</sup>	0	0	0	0	100	0	0	0					
1994–1995	0	0	0	0	100	0	0	0					
1995–1996	0	0	0	25	75	0	0	0					
1996–1997	0	0	0	0	100	0	0	0					
1997–1998	0	0	0	0	100	0	0	0					
1998–1999	0	0	0	0	80	0	20	0					
1999–2000	0	0	0	0	75	0	25	0					
Wolverine													
1986–1987	34	0	0	0	50	0	6	9					
1987–1988	5	5	0	0	90	0	0	Ó					
1988–1989	29	0	0	7	57	0	0	7					
1989–1990	17	25	0	Ó	42	0	0	17					
1990–1991	0	21	0	0	57	0	0	21					
1991–1992	15	0	0	Ö	81	0	0	4					
1992–1993	0	0	0	Ö	100	0	0	0					
1993–1994	24	0	0	Ö	76	0	0	Ö					
1994–1995	10	0	0	0	90	0	0	0					
1995–1996	14	0	0	0	86	0	0	0					
1996–1997	9	0	0	Ö	82	0	9	0					
1997–1998	0	0	0	Ö	100	0	Ó	Ö					
1998–1999	4	0	0	4	88	0	4	Ö					
1999–2000	0	0	0	0	90	0	10	Ö					

<sup>&</sup>lt;sup>a</sup> No reported harvest.

Table 5 Unit 20E beaver, lynx, otter, and wolverine reported harvest chronology by month, regulatory years 1986–1987 through 1999–2000

Species/			Шому	voot noni	o da		
Regulatory	Car /Oat	Mary	Dec	est peri		Mar	A
year	Sep/Oct	Nov	Dec	Jan	Feb	Mar	Apr
Beaver	0	0	0	0	1	2	2
1986–1987	0	0	0	0	1	2	2
1987–1988	0	1	2	0	0	0	0
1988–1989	0	0	0	0	0	1	0
1989–1990	0	0	2	0	0	1	0
1990–1991	0	0	2	0	0	1	0
1991–1992	0	2	6	0	0	2	0
1992–1993	0	0	0	0	2	2	2
1993–1994	0	2	2	0	0	0	0
1994–1995	0	0	0	0	0	0	0
1995–1996	0	0	0	0	0	2	0
1996–1997	0	0	0	0	0	2	1
1997–1998	0	0	0	0	0	0	0
1998–1999	0	0	1	0	0	0	0
1999–2000	0	0	0	0	2	9	0
<u>Lynx</u>							
1986–1987	0	0	7	4	0	0	0
1987–1988	0	0	5	4	0	0	0
1988–1989	0	0	11	12	0	0	0
1989–1990	0	0	19	9	1	0	0
1990–1991	0	18	23	29	0	0	0
1991–1992	0	20	55	37	0	0	0
1992–1993	1	15	26	32	22	0	0
1993–1994	0	0	24	22	0	0	0
1994–1995	0	0	16	7	0	0	0
1995–1996	0	0	5	22	1	0	0
1996–1997	0	0	15	18	0	0	0
1997–1998	0	0	16	57	29	0	0
1998–1999	0	2	25	44	42	2	0
1999–2000	0	1	11	60	7	3	0
1999 2000	U	1	11	00	,	3	O
<u>Otter</u>							
1986–1987 <sup>a</sup>							
1987–1988 <sup>a</sup>							
1988–1989 <sup>a</sup>							
1989–1990 <sup>a</sup>							
1990–1991 <sup>a</sup>							
1991-1992	0	0	1	0	0	0	0
1992–1993 <sup>a</sup>							

Species/							
Regulatory			Harv	est peri	ods		
year	Sep/Oct	Nov	Dec	Jan	Feb	Mar	Apr
1993–1994	0	0	1	0	0	0	0
1994–1995	0	0	1	0	0	0	0
1995–1996 <sup>a</sup>							
1996–1997 <sup>a</sup>							
1997–1998 <sup>a</sup>							
1998–1999 <sup>a</sup>							
$1999-2000^{a}$							
<u>Wolverine</u>							
1986–1987	1	3	2	3	1	0	0
1987–1988	0	0	0	4	2	0	0
1988–1989	0	0	0	0	1	0	0
1989–1990	0	1	6	7	0	0	0
1990–1991	0	0	1	2	1	0	0
1991–1992	0	1	3	4	1	0	0
1992–1993	0	1	0	0	5	0	0
1993–1994	0	0	1	6	3	0	0
1994–1995	0	0	3	3	1	0	0
1995–1996	0	0	3	0	1	0	0
1996–1997	0	0	1	1	4	0	0
1997–1998	0	1	2	1	4	0	0
1998–1999	1	0	4	0	2	0	0
1999–2000	0	0	1	0	2	0	0

<sup>&</sup>lt;sup>a</sup> No reported harvest.

Table 6 Unit 20E harvest percent by transport method, regulatory years 1986–1987 through 1999–2000

			Ha	rvest percent b	y transport method	l		
Species/		Dogsled,						_
Regulatory		Skis,		3- or			Highway	
year	Airplane	Snowshoes	Boat	4-wheeler	Snowmachine	ORV	vehicle	Unknown
Beaver								
1986-1987	0	20	0	0	0	0	0	80
1987-1988	0	0	0	0	100	0	0	0
1988-1989	0	0	0	0	100	0	0	0
1989-1990	0	0	0	0	100	0	0	0
1990-1991	0	67	0	0	33	0	0	0
1991-1992	8	20	0	0	80	0	0	0
1992-1993	0	0	0	0	67	0	0	33
1993-1994	0	0	0	0	100	0	0	0
1994–1995	0	0	0	0	0	0	0	0
1995-1996	0	0	0	0	100	0	0	0
1996-1997	67	0	33	0	0	0	0	0
1997–1998 <sup>a</sup>								
1998–1999	0	0	0	0	100	0	0	0
1999-2000	0	0	0	0	100	0	0	0
<u>Lynx</u>								
1986–1987	0	18	0	0	64	0	0	18
1987–1988	0	33	0	0	67	0	0	0
1988–1989	12	24	0	8	48	0	8	0
1989–1990	0	45	0	0	48	0	7	0
1990–1991	0	7	0	0	83	0	1	9
1991–1992	25	4	0	0	66	0	0	5
1992–1993	8	2	0	1	96	0	0	1
1993–1994	9	0	0	4	85	0	2	0
1994–1995	26	0	0	0	74	0	0	0
1995–1996	4	0	0	0	92	0	4	0
1996–1997	9	0	0	0	91	0	0	0
1997–1998	18	0	0	0	80	0	2	0
1998–1999	4	0	0	0	93	0	3	0
1999–2000	1	1	0	0	91	0	6	0

			Ha	rvest percent b	by transport method	1		
Species/ Regulatory year	Airplane	Dogsled, Skis, Snowshoes	Boat	3- or 4-wheeler	Snowmachine	ORV	Highway vehicle	Unknown
Otter								
1986–1987 <sup>a</sup>								
1987–1988 <sup>a</sup>								
1988–1989 <sup>a</sup>								
1989–1990 <sup>a</sup>								
1990–1991 <sup>a</sup>								
1991-1992	0	0	0	0	100	0	0	0
1992–1993 <sup>a</sup>								
1993-1994	0	0	0	0	100	0	0	0
1994-1995	0	0	0	0	100	0	0	0
1995–1996 <sup>a</sup>								
1996–1997 <sup>a</sup>								
1997–1998 <sup>a</sup>								
1998–1999 <sup>a</sup>								
1999–2000 <sup>a</sup>								
Wolverine								
1986–1987	10	20	0	0	70	0	0	0
1987-1988	29	0	0	0	29	0	14	29
1988-1989	0	0	0	0	100	0	0	0
1989-1990	14	36	0	0	50	0	0	0
1990-1991	25	0	0	0	75	0	0	0
1991-1992	44	0	0	0	44	0	0	11
1992-1993	0	0	0	0	100	0	0	0
1993-1994	70	10	0	0	20	0	0	0
1994-1995	29	0	0	0	57	0	14	0
1995-1996	0	0	0	0	100	0	0	0
1996-1997	17	0	0	0	66	0	0	17
1997-1998	0	0	0	0	100	0	0	0
1998-1999	29	0	0	0	29	0	29	14
1999-2000	0	0	0	0	100	0	0	0

<sup>&</sup>lt;sup>a</sup> No reported harvest.

# SPECIES MANAGEMENT REPORT

Alaska Department of Fish and Game Division of Wildlife Conservation (907) 465-4190 PO BOX 25526 JUNEAU, AK 99802-5526

# FURBEARER MANAGEMENT REPORT

From: 1 July 1997 To: 30 June 2000

# **LOCATION**

GAME MANAGEMENT UNIT: 19 (36,490 mi<sup>2</sup>)

GEOGRAPHIC DESCRIPTION: All drainages of the Kuskokwim River upstream from Lower

Kalskag

# **BACKGROUND**

Furbearers have historically played an important part in the subsistence lifestyle and have contributed to the economic base in western Interior Alaska. Native people relied on furbearers for garments, food, and trade goods. The quest for furs prompted early Russian settlement in the area. During the middle part of the twentieth century, miners in the area were largely unemployed during winter and supplemented their income by trapping and selling fur. Local economies are still influenced by the sale of various furs. Most income realized from the sale of wild pelts is cycled through the local economy several times. Despite the fact that modern transportation methods such as snowmachines have enabled longer traplines, international markets for wild fur have declined, and the economic incentive for harvesting fur has diminished to the point that many trappers have abandoned their traditional traplines for more lucrative pursuits.

Seasons and bag limits have varied dramatically since original regulations were adopted in the early twentieth century. Several factors influence the annual harvest levels of various furbearer species. These include population levels, snow conditions, pelt prices, overall abundance of furbearers, availability of alternate income, fuel prices, and regulations.

# MANAGEMENT DIRECTION

Furbearer management is designed to annually assess populations, maintain or enhance those populations, and design regulations to encourage sustainable harvests.

## MANAGEMENT GOALS AND OBJECTIVES

Management goals and objectives are to 1) annually determine both current status and trend of the various subpopulations for each furbearer species and their primary prey species, 2) obtain estimates of harvest for all furbearer species, 3) assess trapper effort and distribution, and 4) maintain open communications with area trappers.

#### Beaver

- ➤ Manage the various subpopulations to maintain a mean pelt size >50 inches, while maintaining <25% kits in the annual harvest.
- Manage the population to maintain a mean density of not less than 1 active colony per 3.2 km of suitable waterway, or 0.2 active colonies per square kilometer in suitable habitat, as determined during periodic fall cache surveys.

## Marten

- ➤ Obtain estimates of annual harvests through comparisons of fur acquisition reports, fur export reports, and trapper questionnaires.
- ➤ Manage the population to maintain >50% males in the annual harvest and a ratio of not more than 1 adult female per 2.0 juveniles in the annual harvest.

Lynx, River Otter, and Wolverine

- Maintain accurate harvest records based on sealing documents and trapper questionnaires.
- For wolverine, manage the population to maintain >50% males in the annual harvest.

Muskrat, Mink, Red Fox, Coyote, Ermine, and Squirrel

Annually estimate numbers harvested, as well as trends in the respective populations.

# **METHODS**

Population status and trend were determined from Alaska Department of Fish and Game Trapper Questionnaire, Statewide Annual Reports for regulatory years 1997–1998 through 1999–2000. Pelt prices were based on the average prices paid at North American Fur Auction sales.

Harvest and trapping pressure were monitored based on sealing certificates, fur acquisition reports, and fur export reports. Total harvest, harvest chronology, sex and age of some species, method of take, and transportation were summarized by regulatory year (RY), e.g., regulatory year 1 July 1998 through 30 June 1999 = RY98.

## **RESULTS AND DISCUSSION**

## POPULATION STATUS AND TREND

#### Beaver

No beaver cache surveys were conducted after RY97. Previously, Whitman (1998) estimated beaver densities were high, but noted a small decline in the early 1990s. There was less suitable habitat in Units 19B and 19C than in Units 19A and 19D. However, even marginal habitat was frequently occupied. Results of the Trappers Questionnaire indicated that beaver abundance was high in Unit 19 during RY97 through RY99 (Parker-McNeill 1999; Kephart 2000, 2001). Trappers also reported that the trend in the population was increasing as in previous years.

## Lynx

Trappers reported that lynx were scarce during RY97 through RY99 (Parker-McNeill 1999; Kephart 2000, 2001). However, trappers indicated they had seen more lynx during the past 3 years, which is similar to the overall trend observed in Interior Alaska. Whitman (1998) suggested that lynx have probably never been abundant in Unit 19; but that some drainages in the foothills of the Alaska Range and along the Unit 19B/17B border support snowshoe hare populations capable of sustaining limited lynx populations. Hares were abundant in the Interior during RY97–RY99.

# River Otter

River otters were common and the population was probably stable during RY97–RY99 (Parker-McNeill 1999; Kephart 2000, 2001).

## Wolverine

Wolverines were scarce and trappers reported seeing few wolverine or their sign in RY97. During RY98, wolverines were again common, but trappers reported the trend was stable, which conflicted with the previous year's report. In RY99, wolverines were common and trappers reported that wolverine numbers were increasing (Parker-McNeill 1999; Kephart 2000, 2001).

## Marten

Trappers indicated that marten were common, but not abundant in RY97, and reported by RY98 and RY99 they were abundant and the population trend was increasing (Parker-McNeill 1999; Kephart 2000, 2001).

## Mink

Mink were common in Unit 19 and populations appeared to be stable during RY97–RY99 (Parker-McNeill 1999; Kephart 2000, 2001).

## Muskrat

One of the greatest mysteries in furbearer management in Alaska is muskrat population dynamics. Historically, muskrat populations were high in suitable habitat throughout Unit 19, and spring shooting was a widespread pursuit. However, populations declined by about 1975. Since that time, populations have not rebounded. Founder populations still exist, but production and/or survival of kits has not been sufficient to cause population increases. Perhaps predation (by northern pike, in particular), diseases, parasites, or changes in weather or habitat are factors that singly, or in combination, have acted to keep populations low (Whitman 1998). Trappers reported that muskrats were 'common' and increasing in RY97, but were 'scarce' and probably declining in RY98 and RY99 (Parker-McNeill 1999; Kephart 2000, 2001).

# Coyote

Viable coyote populations in Unit 19 were restricted to areas in or near the Alaska Range. Populations periodically expanded into other parts of the unit, but they are unlikely to increase significantly as long as wolves are common and widespread (Whitman 1998). Trappers reported coyotes were 'scarce' during RY98 and RY99 (Parker-McNeill 1999; Kephart 2000, 2001).

## Red Fox

Trappers reported that red fox populations were relatively low through the mid 1980s, before peaking about 1990 (Whitman 1998). Incidental observations of red foxes in early winter 1997 indicated the population was rebounding (Whitman 1998). However, trappers reported fewer red fox in RY97; but by RY98 and RY99 red fox had again increased (Parker-McNeill 1999; Kephart 2000, 2001).

## **MORTALITY**

Harvest

Unit 19 Trapping Seasons and Bag Limits, regulatory years 1997–1998 through 1999–2000.

Season	Bag limit
1 Nov-10 Jun	No limit
1 Nov-31 Mar	No limit
1 Nov-28 Feb	No limit
1 Nov-28 Feb	No limit
1 Nov-28 Feb	No limit
1 Nov-10 Jun	No limit
1 Nov-31 Mar	No limit
1 Nov-15 Apr	No limit
1 Nov-31 Mar	No limit
	1 Nov-10 Jun 1 Nov-31 Mar 1 Nov-28 Feb 1 Nov-28 Feb 1 Nov-28 Feb 1 Nov-10 Jun 1 Nov-31 Mar 1 Nov-15 Apr

# Unit 19 Hunting Seasons and Bag Limits.

Species	Season	Bag limit
Coyote	1 Sep-30 Apr	2
Red Fox	1 Sep-15 Mar	10
Lynx	1 Nov-28 Feb	2
Wolverine	1 Sep-31 Mar	1

<u>Board of Game Actions and Emergency Orders</u>. During the March 1996 Board of Game meeting, beaver seasons were extended in Unit 19 until 10 June, to align with current muskrat trapping seasons in Unit 19D. In addition, the board adopted regulations allowing the use of firearms during spring, with a daily bag limit of 2 beavers (by shooting), with the stipulation that meat was to be salvaged for human consumption. No regulation changes have been made since then.

# Trapper Harvest, Residency, and Chronology.

*Beaver* — Beaver harvests have fluctuated widely, and generally declined, since the mid 1960s (Whitman 1998). The low harvests reflect low pelt prices rather than low populations (Whitman 1998). Thus, in recent years a significant portion of the beaver harvest was motivated by recreation, rather than by economics (Whitman 1998). In addition, much of the beaver harvest by

local subsistence users was for human food or dog food and for use in garments. Often, these pelts were not presented for sealing; and this portion of the harvest is poorly documented.

Reported harvest was low in regulatory years 1995, 1998, and 1999 (<90) and substantially higher in RY96 and RY97 (>200; Table 1). The percent of kits in the harvest was very low during RY96–RY99 (Table 2). This may be the result of severe weather, high populations and reduced food supply or trappers using larger snares to target adult beavers. Beaver pelt prices were slightly higher (\$11–\$16) and there were more trappers in the field in RY96 and RY97 than during the other 3 regulatory years (Table 2). This may account for the increase in harvest in RY96 and RY97 (Table 3).

During RY95–RY99, beaver were harvested throughout the winter and spring with most of the harvest occurring in January and March (Table 4). In previous years most harvest occurred in February and March (>75%; Whitman 1998). The reasons for the apparent change in trapping effort are unknown. Weather conditions and pelt prices were probably contributing factors.

Lynx — As mentioned previously, lynx are not abundant in Unit 19. During RY95–RY99, harvest ranged from 9 to 31 (Table 1 and 2). The harvest of 31 lynx in RY99 coincided with an overall population high observed in the Interior. Most lynx were harvested in December, January, or February (Table 4). Pelt prices for lynx were higher during RY95–RY97 than in previous and subsequent years (Whitman 1998; Table 3).

River Otter —River otter harvest was low during RY95–RY99 (x = 19; Table 1), except in RY96 when 50 animals were harvested. The harvest of river otters in Unit 19 had declined during the 15 years prior to RY96 (Whitman 1998). Pelt prices for otter increased from \$55 in 1994 to \$90 in RY95. Prices remained relatively high in RY96 and RY97 and declined somewhat after that (Table 3). The relatively high harvest in RY96 was consistent with increased harvests of other furbearers in Unit 19 (Tables 1 and 2); but the reasons for the increases are not known. Although sex of otter was recorded, sample sizes during RY95–RY99 were too small to draw any inferences (Table 2). Harvest chronology by month was relatively consistent throughout the season (Table 4).

Wolverine — Wolverine harvest in Unit 19 did not fluctuate or decline as much as other furbearing species during the past 3 decades (Whitman 1998). Harvest was fairly stable during RY95–RY99 (Range: 37–76; Tables 1 and 2). Although wolverine pelt prices have declined over the years, they still bring a substantially higher price than most other furs (Table 3). Harvest occurred throughout the season (Table 4).

Marten — Marten are the most sought after and valuable furbearer species in Unit 19. Most trappers target marten, and other species (except wolverine) are taken incidentally (Whitman 1998). Harvest has been low or declining for several years because of low pelt prices (Whitman 1998). Estimated harvest was very low in RY95 (494), increased substantially in RY96 (2647), and then remained stable for RY97–RY99 (Range: 822–912; Table 5). Pelt prices in RY94 were especially low but almost doubled for RY95, RY96, and RY97 (Table 3). Although harvest was low in RY95, it increased in RY96, in part because of the increase in price.

Mink — Market demand for wild-caught mink was low. Consequently, few Unit 19 trappers targeted them and harvest has been low for at least a decade. Mink trapping was largely incidental to marten trapping efforts. During RY95–RY99, estimated harvest ranged from 10–35, except in RY96, when harvest was 92, following the trend seen in other species in RY96.

Muskrat — Poor pelt prices and low population density combined to make muskrat one of the least valuable furbearer species in the area (Whitman 1998). Some harvest by shooting occurred in scattered locations during spring, and most pelts were used in domestically produced hats.

*Ermine and Red Squirrel* — These species have little recreational or economic value in the region. Most harvest occurs incidental to marten trapping (Table 5). Pelt prices were very low for both ermine and red squirrel.

*Coyote* — Similar to previous years (Whitman 1998), estimated unitwide harvest of coyotes was less than 10 annually during RY95–RY99 (Table 5).

Red Fox — Red fox were generally captured incidentally to other species. Little effort was expended specifically for them, although some pelts were used in garments and craft items. During RY95–RY99 harvest was <50, except in RY96 when reported harvest was 82 (Table 5).

# Residency, Harvest Methods, and Transportation Methods.

Almost all harvest was by residents of Unit 19. Most harvest occurred in Units 19A and 19D (Table 1) near communities. However, a significant proportion of the wolverine harvest occurred in Unit 19B, an area with excellent wolverine habitat.

The most frequently used method of take (>80%) for all species during RY95–RY99 was trapping/snaring (Table 2). Shooting from the ground accounted for most of the remainder of the harvest, with a few animals taken by land and shoot (Table 2).

Transportation methods shifted from a prevalence of snowshoes, skis, or dog teams during the mid 1980s to primarily mechanized vehicles (Whitman 1998). During RY95–RY99, trappers used snowmachines more than 55% of the time. Snowshoes and airplanes were the next most common transport method for taking beaver (Table 6). Snowmachines were used to harvest most lynx and river otter (Table 6). Snowmachines were also the predominant transport method for wolverines, but aircraft were also a frequently used method of transport (Table 6).

## CONCLUSIONS AND RECOMMENDATIONS

Trappers Questionnaire results indicated that, in general, most of the furbearer populations in Unit 19 were stable or increasing. Habitat for lynx is limited, accounting for the low harvests of this species. Coyote populations will probably remain low as long as wolves inhabit the area. Pelt prices have declined significantly over the years with an occasional increase as observed for some species in regulatory years 1995 through 1997. Although we do not have quantitative data on furbearer populations, pelt prices and harvest will probably remain low in the foreseeable future, indicating existing regulations are adequate, and can continue to provide substantial

opportunities to harvest furbearers. Management goals and objectives should be revised as follows:

## MANAGEMENT GOALS

- ➤ Protect, maintain, and enhance furbearer populations in concert with other components of the ecosystem.
- ➤ Provide people with sustained opportunities to participate in subsistence use, hunting/trapping for recreational and commercial purposes, viewing, and photographing furbearers.

# **MANAGEMENT OBJECTIVES**

- Maintain accurate annual harvest records based on sealing documents.
- Maintain indices of population trends using trapper questionnaires.

## Activities Planned

- 1 Seal furs of selected species as they are harvested and presented for sealing to monitor harvest levels and trends. (Objective 1a)
- 2 Conduct trapper questionnaires and interviews to determine the status of various furbearer populations. (Objective 1b)

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Table 1 Unit 19 furbearer harvest by subunit, regulatory years 1995–1996 through 1999–2000

			Unit			
Species/Year	19A	19B	19C	19D	19Z	Total
Beaver						
1995-1996	3	11	2	64	0	80
1996-1997	222	16	0	159	24	421
1997-1998	77	15	0	116	0	208
1998-1999	12	5	2	35	0	54
1999–2000	17	13	0	57	0	87
Lynx						
1995–1996	0	1	8	2	0	11
1996-1997	7	0	3	13	1	24
1997-1998	1	2	1	5	0	9
1998-1999	1	0	6	5	0	12
1999–2000	1	22	6	2	0	31
River Otter						
1995-1996	0	5	0	1	0	6
1996-1997	30	5	0	15	0	50
1997-1998	8	4	0	4	0	16
1998-1999	4	1	0	1	0	6
1999–2000	8	7	0	0	0	15
Wolverine						
1995-1996	5	16	14	2	0	37
1996-1997	9	26	19	20	2	76
1997-1998	5	17	6	4	6	38
1998-1999	6	22	9	5	1	43
1999–2000	10	22	15	15	0	62

Table 2 Unit 19 beaver, lynx, otter, and wolverine reported harvest by sex, age, and method of take, regulatory years 1995–1996 through 1999–2000

			Repo	orted harve	est							Successful
Regulatory		Sex			Age			Method of take			Total	trappers/
year	M	F	Unk	Juv <sup>a</sup>	Adults	Unk	Trap/snare	Shot	L&S	Unk	harvest	hunters
Beaver												
1995-1996			80	26	39	15	80	0	0	0	80	15
1996-1997			421	42	376	3	363	14	0	44	421	36
1997-1998			208	16	186	6	203	5	0	0	208	25
1998-1999			54	1	51	2	41	0	0	3	54	12
1999–2000			87	2	85	0	78	0	0	9	87	15
Lynx												
1995–1996			11	1	10	0	11	0	0	0	11	7
1996-1997			24	8	16	0	22	0	0	2	24	17
1997-1998			9	3	5	1	8	1	0	0	9	9
1998-1999			12	1	7	4	12	0	0	0	12	7
1999–2000			31	3	26	2	30	1	0	0	31	8
River otter												
1995-1996	1	1	4	3	3	0	6	0	0	0	6	3
1996-1997	19	29	2	13	35	2	44	3	1	2	50	21
1997-1998	4	7	5	5	8	3	15	1	0	0	16	9
1998-1999	2	3	1	0	6	0	5	0	0	1	6	6
1999–2000	4	4	7	3	12	0	15	0	0	0	15	5
Wolverine												
1995-1996	24	11	2			37	33	3	0	1	37	20
1996-1997	42	32	2			76	70	5	1	0	76	37
1997-1998	24	13	1			38	33	3	0	2	38	23
1998-1999	31	12	0			43	34	7	1	1	43	22
1999-2000	43	16	3			62	52	9	0	1	62	35

<sup>&</sup>lt;sup>a</sup> Beaver (length × width)  $\le 52$ " = juvenile. Lynx (length) < 34" = juvenile. River otter (length) < 42" = juvenile.

Table 3 Average North American furbearer pelt prices (US dollars), regulatory years 1995–1996 through 2000–2001

	Regulatory year							
Species	1995–1996	1996–1997	1997–1998	1998–1999 <sup>a</sup>	1999–2000 <sup>b</sup>	2000–2001 <sup>c</sup>		
Beaver Good quality large brown	22	33	35	22	18	17		
<i>Marten</i> Large I-II dark brown	66	66	66	22	32	29		
Mink Large-medium I-II dark brown North	19	26	23	10	14	15		
Red fox XL-large I-II Northwest	27	38	34	10	17	23		
Lynx Large-medium I-II first color	82	90	95	58	48	40		
River otter XL-large I-II dark brown	90	74	86	43	64	61		
Wolverine XL I-II brown	170	160	249 <sup>d</sup>	n/a	187	136		

<sup>&</sup>lt;sup>a</sup> Beaver and marten from 12 Feb 1999 sale; lynx from 11 Mar 1999 sale; mink, fox, and otter from 27 May sale. <sup>b</sup> Prices from 25 Feb 2000 sale.

<sup>&</sup>lt;sup>c</sup> Prices from 11 Jan 2001 sale. <sup>d</sup> Not graded. Only 198 offered for sale with 85% sold.

Table 4 Unit 19 beaver, lynx, otter, and wolverine harvest chronology by month, regulatory years 1995–1996 through 1999–2000

Regulatory				Har	vest perio	ods			
year	Sep/Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Beaver									
1995-1996	5	10	27	0	3	23	12	0	0
1996–1997	0	42	28	106	53	144	17	26	5
1997-1998	0	2	53	27	32	84	5	5	0
1998–1999	0	0	3	8	6	18	1	0	0
1999–2000	0	1	19	22	9	17	19	0	0
Lynx									
1995–1996	0	1	3	4	3	0	0	0	0
1996–1997	0	1	4	8	8	1	0	0	0
1997–1998	0	1	3	2	2	0	0	0	0
1998–1999	0	0	2	3	6	1	0	0	0
1999–2000	0	12	11	6	1	0	0	0	0
River otter									
1995–1996	0	4	1	1	0	0	0	0	0
1996–1997	0	7	7	9	21	4	2	0	0
1997-1998	0	3	2	7	1	3	0	0	0
1998–1999	0	0	3	1	2	0	0	0	0
1999–2000	0	0	0	13	1	0	0	0	0
Wolverine									
1995–1996	1	2	6	6	9	12	0	0	0
1996–1997	4	11	17	22	13	9	0	0	0
1997–1998	3	1	6	4	15	9	0	0	0
1998–1999	0	5	9	10	10	9	0	0	0
1999-2000	6	7	18	13	8	9	0	0	0

Table 5 Unit 19 estimated harvest<sup>a</sup> of unsealed furbearer species, regulatory years 1995–1996 through 1999–2000

Regulatory				Species			
year	Coyote	Red Fox	Marten	Mink	Muskrat	Weasel	Squirrel
1995–1996	0	21	494	35	1	5	0
1996–1997	2	82	2647	92	6	46	1
1997–1998	2	45	865	34	0	0	0
1998–1999	3	22	822	3	0	2	0
1999-2000	2	44	912	10	0	0	0

<sup>&</sup>lt;sup>a</sup> Estimates calculated by combining Fur Acquisition Reports and Fur Export Permits.

Table 6 Units 19A, 19B, 19C, and 19Z beaver, lynx, otter, and wolverine harvest percent by transport method, regulatory years 1995–1996 through 1999–2000

				Harvest percent	by transport method			
•		Dogsled,						
Species/Regulatory		Skis, or		3- or			Highway	
year	Airplane	Snowshoes	Boat	4-Wheeler	Snowmachine	ORV	vehicle	Unknown
Beaver								
1995-1996	24	11	0	6	59	0	0	0
1996-1997	<1	4	7	0	82	0	<1	7
1997-1998	6	0	0	0	91	0	0	3
1998-1999	4	31	0	0	59	0	0	6
1999–2000	1	10	0	0	78	0	0	10
Lynx								
1995–1996	9	54	0	0	36	0	0	0
1996-1997	0	17	4	0	67	4	0	8
1997-1998	11	0	0	0	78	0	0	11
1998-1999	8	0	0	0	92	0	0	0
1999–2000	6	77	0	0	13	0	0	3
River Otter								
1995-1996	17	0	0	67	17	0	0	0
1996-1997	6	0	0	0	90	0	0	4
1997-1998	0	0	0	0	100	0	0	0
1998-1999	33	0	0	0	50	0	0	17
1999–2000	0	7	0	0	87	0	0	7
Wolverine								
1995-1996	27	19	0	3	49	0	0	3
1996-1997	32	9	0	0	58	0	0	1
1997-1998	47	10	3	0	34	0	0	5
1998-1999	39	0	2	0	56	0	0	2
1999-2000	14	26	2	2	53	0	2	2

# SPECIES MANAGEMENT REPORT

Alaska Department of Fish and Game Division of Wildlife Conservation (907) 465-4190 PO BOX 25526 JUNEAU, AK 99802-5526

## FURBEARER MANAGEMENT REPORT

From: 1 July 1997 To: 30 June 2000

## **LOCATION**

**GAME MANAGEMENT UNIT:** 20A, 20B, 20C, 20F, and 25C (44,760 mi<sup>2</sup>)

GEOGRAPHIC DESCRIPTION: Central and lower Tanana Valley and middle Yukon River

drainage

## **BACKGROUND**

The fur trade is one of Alaska's oldest industries. Trapping can be significant to the economies of rural areas because alternative sources of income are limited. Furbearers provide food and clothing for personal use and cash income. Nonconsumptive use of furbearers is also important, because many people enjoy watching furbearers or finding evidence of their activities.

Little is known about factors limiting furbearer populations. Most furbearers are difficult to study because of their secretive habits. Information has come primarily from harvest data. Trapper questionnaires have been used annually since 1965 to collect information on trapper activities and the relative abundance of furbearers. Furbearer investigations in the last 25 years in Interior Alaska have included research on: 1. Lynx population dynamics (Nava 1970; Berrie 1973; O'Connor 1984; Stephenson 1988); 2. Beaver population ecology (Boyce 1974, 1981); 3. The effects of fire on furbearers (Stephenson 1984; Magoun and Vernam 1986); and 4. Development of techniques to survey furbearer populations using track counts (Golden 1987; Schwartz et al. 1988; Stephenson 1988).

### MANAGEMENT DIRECTION

## MANAGEMENT GOALS AND OBJECTIVES

#### Beaver

- ➤ Manage beaver in the lower Chena River portion of Unit 20B for an annual fall beaver colony density of 0.2 to 0.5 colonies/km² of river and mitigate problems arising from beaver activities.
  - ➤ Conduct annual fall beaver cache surveys in the lower Chena River to identify cache locations and determine at which sites to allow harvest.
  - > Issue nuisance beaver permits to remove problem animals.

➤ Coordinate with Department of Transportation and Public Facilities (DOT/PF) to minimize dammed culverts and flooded roads.

## Lynx

- Manage lynx with a tracking harvest strategy whereby seasons are most liberal when lynx are abundant and most conservative when lynx are scarce.
  - Estimate the annual sex and age of harvested lynx by examining carcasses from Units 20A and 20B.
  - Conduct aerial track surveys in Units 20A and 20B to provide indices to trends in lynx and hare populations.

#### Wolverine

- Manage wolverine harvests in Unit 20A based on estimates of sustainable yield derived from density estimates and modeling.
  - Complete aerial surveys to estimate density of wolverine in Unit 20A by April 2003.
  - ➤ Use the model of Gardner et al. (1993) to estimate sustainable wolverine harvests in Unit 20A.

## **METHODS**

We conducted beaver cache surveys from a R-22 helicopter in 1998 and from a riverboat in 1999 and 2000 during late September/early October to determine fall beaver colony density in the lower Chena River (downstream from the confluence with the Little Chena River). In 1993, we began subjectively categorizing cache sizes relative to the 18' boat used to conduct the surveys (<18' = small, 18' = medium, >18' = large). We mitigated problems arising from beaver activity by issuing nuisance or registration permits to trappers, and by coordinating with the public and DOT/PF highway crews to minimize dammed culverts and flooded property. In 1999 we initiated a program through which Alaska Trapper Association (ATA) members served as mentors to local youth, teaching ethical and responsible trapping practices along this stretch of river.

We maintained accurate records of harvest by compiling data from the required sealing documents for beavers, lynx, otters, and wolverines. A Uniform Coding Unit was assigned to each pelt sealed to monitor distribution of harvest. Sealing data provided minimum harvest estimates because some pelts were used domestically and were not reported. Fur prices were compiled from data provided by North American Fur Exchange (NAFE). Prices were the averages from December and February sales prior to 1998 when the NAFE started offering limited sales. From 1998 to the present, prices given are the average for each species at select sales as indicated.

We sent questionnaires to 100–150 trappers to get information regarding their trapping activities. In previous reports, trapper questionnaires were used to get trapper opinions on furbearer

population levels and trends. During 1994–1995 and 1995–1996 the format for the report and the compiling of the information collected from trappers was changed. The new format focused mainly on effort and methods and did not address trapper impressions of local furbearer populations. The questionnaire format was changed again during 1996–1997 to focus on species abundance, but with a more subjective basis than in the pre-1994 trapper questionnaire reports.

The term "regulatory year" means 1 July through 30 June of the following calendar year, and unless otherwise noted all years refer to the regulatory year.

## RESULTS AND DISCUSSION

#### POPULATION STATUS AND TREND

Cache surveys indicated beaver colony density in the lower Chena River varied from 0.5 caches/km² to 0.8 caches/km² between 1995 and 2000 (Table 1). Density was highest in the Fort Wainwright area of the Chena River survey area. I estimate that approximately 300 beaver inhabit the lower Chena drainage, by using a mean of 5 beavers per colony (Boyce 1974) and considering gravel pits and other waterways.

Boyce (1981) concluded that 0.5 colonies/km<sup>2</sup> was a saturation density for beaver in Interior Alaska. By fall 2000, colony density observed in the lower Chena River (0.5 colonies/km<sup>2</sup>) met the high end of our objective of 0.2 to 0.5 colonies/km<sup>2</sup> (Table 1).

#### **MORTALITY**

Harvest

Seasons and Bag Limits. Seasons and bag limits varied among subunits over time (Tables 2–5).

<u>Board of Game Actions and Emergency Orders.</u> The board took no actions during this reporting period and no emergency orders were issued.

## <u>Hunter/Trapper Harvest.</u>

*Beaver* — Since the 1996–1997 season the reported beaver harvest has decreased each year (1049 during 1996–1997 to 342 during 1999–2000; Table 6). The low harvest probably reflected lower beaver trapping effort because of depressed prices. The average pelt price from February 2000 was \$18 (Table 7).

Since the 1995 trapping season, combined Chena River and Badger Slough harvests fluctuated from 7 to 27 beaver/year (Table 8). Trapper success was affected by weather, including deep snow and cold temperatures, which directly affect the amount of overflow on the Chena River. Prior to 1999 this area was harvested using a registration permit system. Due to numerous public complaints about the registration system and increasing nuisance beaver reports during the summer of 1999, a new harvest strategy was adopted. Now ATA representatives serve as mentors to teach local youth ethical and responsible beaver trapping principles. The program has been well accepted by the vast majority of the public that I have contact with and nuisance beaver complaints have decreased.

Lynx — The reported lynx harvest has increased annually since 1995 (77 during 1995 to 1062 during 1999; Table 6). The lynx harvest increased because the population has been increasing after reaching a low point in the cycle. The February 2000 price for lynx of \$48 is about half the price in 1998 when the average pelt sold for \$95 (Table 7). Unlike most furbearers, harvest effort for lynx is dictated more by abundance than by price, probably because they can be caught and prepared with relatively little effort. During the 1999–2000 season, most lynx (91%) were taken in Units 20A, 20B, or, 20C, with Unit 20A alone accounting for 41% of the total harvest.

Substantive changes in the lynx harvest probably reflected changes in the lynx population. However other factors that influenced lynx harvests include: 1) changes in season lengths, 2) publicity encouraging trappers to restrict their harvest of lynx during the low phase of the cycle, 3) environmental conditions affecting trapping effort.

Lynx track survey transects have been established in Units 20A and 20B, but inconsistency between years (timing and snow conditions) limits the usefulness of the data. However, when track survey data are combined with other sources of information, important trends can be identified. Currently, Mark McNay (Research Biologist, ADF&G, Fairbanks) is analyzing data from lynx carcasses collected from Units 20A and 20B during the past several years. Preliminary indications from carcass examinations, track survey data, and harvest data, all suggest that we are currently at or near the peak in the lynx population cycle. Information from the trapper questionnaires also support this, indicating that the snowshoe hare population has started to decrease after several years with moderate-to-high numbers.

*River Otter* — The reported harvest of otters ranged from 21 to 38 between the 1997–1998 and 1999–2000 seasons (Table 6). Average otter pelt prices ranged from \$43–\$86 (Table 7).

I believe weather and trapping conditions influence otter harvests. Price increases may also create increased effort by trappers who normally do not set traps for otters.

Wolverine — Wolverine harvests ranged from 27–42 wolverines during the 1997–1998 and 1999–2000 seasons (Table 6). The average pelt price ranged from \$136–\$187 (Table 7).

The percentage of males in the harvest was 60–78% during the last 3 years (Table 9). Male wolverines have larger home ranges than females (Gardner 1985; Magoun 1985) and are more susceptible to trapping. Long-term trends of <50% male wolverines in harvests could indicate unsustainable harvests and should trigger more in-depth analysis of the population. This should include using the model developed by Gardner et al. (1993).

Magoun (1985) stated that factors responsible for long-term wolverine population declines could include: 1) widespread declines in food resources, particularly the demise or shift in range of large ungulate populations; 2) widespread habitat destruction; and 3) heavy harvests over large areas.

Other Furbearers — Because there are no sealing requirements for coyote, ermine, marten, mink, muskrat, red fox, or red squirrel, I determined trends in these species using the trapper questionnaire and personal conversations with trappers. According to the questionnaires (only summaries for the 1997–1998 and 1998–1999 seasons were available for this reporting period)

ermine, muskrat, and red squirrel were reported as stable, coyote and red fox numbers were up, and there were fewer marten and mink. The only exception to these trends was that mink numbers seemed to be up during the last two (1999–2000 and 2000–2001) seasons. This trend may be indicated when more recent questionnaires are summarized.

Method of Take and Transportation. From the 1997–1998 season through the 1999–2000 season, snares were the most common method of harvesting beavers (Table 10). Traps were the most common method of harvesting lynx, wolverines, and river otter. Snowmachines were the most commonly used method of transportation for harvesting all 4 species (Table 10).

## CONCLUSIONS AND RECOMMENDATIONS

Management objectives for the Chena River beaver populations were met, utilizing registration, ATA, and nuisance permits. Further efforts to reduce the number of nuisance permits issued should be investigated. One possibility would be to solicit local residents to trap beaver during the regular season in chronic nuisance areas.

Lynx management objectives were met. We managed lynx seasons using the Tracking Harvest Strategy. We estimated sex and age of the harvest through carcass collection and conducted aerial track surveys.

Wolverine management objectives were not met. Wolverine harvest modeling was not accomplished during this reporting period. Population estimates must be done before the modeling exercise can be completed.

For other furbearer species, we did not detect any problems requiring management changes. Trappers will continue to be an important source of information. Communication with the trappers should be improved by: 1) expanding the trapper questionnaire, 2) visiting traplines, 3) writing articles about furbearer research and management projects for the Alaska Trapper's Association magazine, 4) soliciting input regarding management issues, and 5) trying to keep trappers informed about issues affecting them. I recommend no regulatory changes at this time.

Snowshoe hare populations have probably peaked and are currently experiencing an overall decrease and grouse populations have been low for the past two years. I expect lynx and possibly fox populations to decrease during the next reporting period.

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Table 1 Fall beaver cache surveys in the lower Chena River, Badger Slough and Noyes Slough, Unit 20B, 1995-2000

Date	Location <sup>a</sup>	Caches	Stream distance (km <sup>2</sup> )	Density (caches/km <sup>2</sup> )
1995				
27 Sep	Chena River	26	40	0.7
1996				
2 Oct	Chena River	21	40	0.5
1997				
2 Oct	Chena River	28	40	0.7
1998				
5 Oct	Chena River	32	40	0.8
1999				
5 Oct	Chena River	24	40	0.6
2000				
28 Sep	Chena River	20	40	0.5

<sup>&</sup>lt;sup>a</sup> Chena River downstream from confluence with Little Chena River, Badger Slough downstream from Plack Road.

Table 2 Trapping seasons and bag limits for selected furbearers within the Fairbanks Area (Units 20A, 20B, 20C, 20F, and 25C), 1983–2001

Species	Season dates	Season length	Years	Bag limit
River otter	1 Nov-15 Apr	167	1983-2001	No limit
Wolverine	1 Nov-31 Mar	152	1983-1986	No limit
	1 Nov-28 Feb	121	1987-2001	No limit
Coyote	1 Nov-31 Mar	152	1983-2001	No limit
Marten, Mink	1 Nov-28 Feb		1983-2001	No limit
Weasel, Fox				
Muskrat	1 Nov-10 Jun	223	1983-2001	No limit

Table 3 Hunting seasons and bag limits for selected furbearers within the Fairbanks Area (Units 20A, 20B, 20C, 20F, and 25C), 1983–2001

Species	Season dates	Season length	Year(s)	Bag limit
Lynx	1 Nov-31 Mar	152	1983-1986	2
	1 Nov-31 Dec	61 (Unit 20A)	1987	2
	1 Nov-15 Jan	76 (Units 20B, 20C,	1987	2
		20F, and 25C)		
	15 Dec-15 Jan	31	1988–1989	2
	1 Dec-31 Jan	62	1990-2001	2
Wolverine	1 Sep-31 Mar	213	1983-2001	1
Red Fox	1 Nov-15 Feb	117	1983-1990	2
	1 Sep-15 Mar	197	1991-2001	10
Coyote	1 Sep-30 Apr	243	1983-2001	2
Squirrel	No closed season		1983-2001	No limit

Table 4 Trapping seasons and bag limits for beaver within the Fairbanks Area (Units 20A, 20B, 20C, 20F, and 25C), 1983–2001

Unit	Season dates	Season length (days)	Years	Bag limit
20A	1 Feb–15 Apr	75	1983–1991	25
	1 Nov–15 Apr	167	1992–1997	25
	1 Nov–15 Apr	167	1998-2001	No limit
$20B^{a}$	1 Feb–15 Apr	75	1983-1984	25
	1 Nov–15 Apr	167	1985-1997	25
	1 Nov–15 Apr	167	1998-2001	No limit
20C	1 Nov-15 Apr	167	1983-1997	25
	1 Nov-15 Apr	167	1998-2001	No limit
20F	1 Nov–15 Apr	167	1983-1987	25
	1 Nov–15 Apr	167	1988-1997	50
	1 Nov-15 Apr	167	1998-2001	No limit
25C	1 Nov–15 Apr	167	1983-1997	25
	1 Nov-15 Apr	167	1998-2001	No limit

<sup>&</sup>lt;sup>a</sup> A portion of the lower Chena River and Badger Slough has been either closed to trapping without a permit since 1983.

Table 5 Trapping seasons and bag limits for lynx within the Fairbanks Area (Units 20A, 20B, 20C, 20F, and 25C), 1983-2001

Season dates	Season length	Year(s)	Bag limit
1 Nov–15 Mar	136	1983–1984	No limit
1 Dec–31 Jan	62	1985–1986	No limit
1 Dec–15 Jan	46 (Unit 20A)	1987	No limit
1 Dec-31 Dec	31 (Units 20B, 20C,	1987	No limit
	20F, and 25C)	-2.0.	
15 Dec-15 Jan	31	1988–1989	No limit
1 Dec-31 Jan	62	1990-1991	No limit
1 Nov-31 Jan	92	1992	No limit
1 Dec-31 Jan	62	1993	No limit
1 Dec-15 Jan	46	1994	No limit
15 Dec-15 Jan	31 (Units 20A, 20B,	1995	No limit
	and 20C east of		
	Teklanika)		
1 Dec-31 Jan	(Units 20F, 25C, and	1995	No limit
	remainder of 20C)		
15 Dec-15 Jan	31 (Units 20A, 20B,	1996	No limit
	and 20C east of		
	Teklanika)		
1 Dec-31 Jan	62 (Units 20F, 25C,	1996	No limit
	and remainder of		
	20C)		
1 Dec–15 Feb	77 (Units 20A, 20B,	1997	No limit
	and 20C east of		
131 00 5 1	Teklanika)	1007 2001	37 11 1.
1 Nov–28 Feb	121 (Units 20F, 25C,	1997–2001	No limit
	and remainder of		
1 D 20 E.L	20C)	1000 1000	NI - 11 14
1 Dec–28 Feb	91 (Units 20A, 20B,	1998–1999	No limit
	and 20C east of Teklanika)		
1 Nov–28 Feb	121 (Units 20A, 20B,	2000–2001	No limit
1 INUV-20 FED	and 20C east of	Z000-Z001	INO IIIIII
	Teklanika)		
	i Criailira)		

Table 6 Number of pelts sealed a from selected furbearers in portions of Units 20 and 25C, regulatory years 1995–1996 through 2000–2001

				Regulat	ory year		
Species	Unit	1995–1996	1996–1997	1997–1998	1998–1999	1999–2001	2000-2001 <sup>b</sup>
Beaver	20A	61	125	29	82	35	
	20B	217	647	599	405	230	
	20C	103	239	137	128	70	
	20F	0	29	11	3	0	
	25C	1	9	5	3	7	
Total		436	1049	781	621	342	
Lynx	20A	16	42	168	260	440	
-	20B	34	104	251	371	388	
	20C	20	89	186	173	135	
	20F	2	8	50	29	56	
	25C	5	37	29	2	43	
Total		77	280	684	835	1062	
River Otter	20A	10	9	0	4	20	
	20B	32	40	27	12	6	
	20C	5	8	9	4	6	
	20F	0	1	2	1	0	
	25C	0	1	0	0	0	
Total		47	59	38	21	32	
Wolverine	20A	5	7	10	11	22	
	20B	2	13	10	9	10	
	20C	5	11	17	4	7	
	20F	0	1	1	1	3	
	25C	4	6	4	2	0	
Total		16	38	42	27	42	

<sup>&</sup>lt;sup>a</sup> Includes only sealed beavers that were dried and stretched.

<sup>&</sup>lt;sup>b</sup> Data not available at time or report writing.

Table 7 Average North American furbearer pelt prices (US dollars), regulatory years 1995–1996 through 2000–2001

			Regula	atory year		
Species	1995–1996	1996–1997	1997–1998	1998–1999 <sup>a</sup>	1999–2000 <sup>b</sup>	2000–2001°
Beaver	22	33	35	22	18	17
Good quality						
large brown						
<u>Marten</u>	66	66	66	22	32	29
Large I-II						
dark brown						
Mink	19	26	23	10	14	15
Large-medium I-II						
dark brown North						
Red fox	27	38	34	10	17	23
XL-large I-II						
Northwest						
<u>Lynx</u>	82	90	95	58	48	40
Large-medium I-II						
first color						
<u>Otter</u>	90	74	86	43	64	61
XL-large I-II						
dark brown			ā			
<u>Wolverine</u>	170	160	249 <sup>d</sup>	n/a	187	136
XL I-II						
brown						

<sup>&</sup>lt;sup>a</sup> Data compiled by T Boudreau from North American Fur Exchange Prices only.
<sup>b</sup> Prices from 25 Feb 2000 sale.

<sup>&</sup>lt;sup>c</sup> Prices from 11 Jan 2001 sale.

<sup>&</sup>lt;sup>d</sup> Not graded. Only 198 offered for sale with 85% sold.

Table 8 Summary by year of the results of the registration beaver trapping season in the lower Chena River portion of Unit 20B, 1995–2001

_			Caches	Lodges	Total available	Beav	ers trap	pped
Year	Season dates	Trappers	available	trapped	limit	Adults	Kits	Total
1995	1 Dec 1995 31 Jan 1996	7	26	10	35	21	0	21
1996	1 Dec 1996 31 Jan 1997	5	21	6	25	7	0	7
1997	1 Dec 1997 31 Jan 1998	8	unk	7	40	20	2	22
1998 <sup>a</sup>	1 Dec 1998 31 Jan 1999	8	32	8	40			12
1999 <sup>b</sup>	1 Feb 2000 31 Mar 2000	n/a	24	24	50			27
2000	1 Feb 2001 31 Mar 2001	n/a	20	12	75			11

<sup>&</sup>lt;sup>a</sup> Starting in 1998 we no longer kept track of kits in the harvest.

<sup>b</sup> Starting in 1999 the lower Chena River section was trapped by the Alaska Trapper's Association as a mentoring program for local youth.

Table 9 Wolverine harvest (number of pelts sealed) and percentage of males in the harvest, Units 20A, 20B, 20C, 20F, and 25C, regulatory years 1989–1990 through 2000–2001

Regulatory year	Sealeda	Males	% males <sup>a</sup>
1989–1990	19	10	53
1990-1991	22	13	59
1991-1992	44	26	59
1992-1993	20	15	75
1993-1994	43	35	81
1994–1995	33	17	51
1995–1996	16	12	75
1996-1997	38	21	55
1997-1998	42	24	60
1998–1999	27	18	78
1999–2000	42	31	76
2000–2001 <sup>b</sup>	9	7	78

<sup>&</sup>lt;sup>a</sup> Excludes wolverines of unknown sex. <sup>b</sup> Preliminary data.

Table 10 Percent method of take and transportation used to harvest furbearers from Units 20A, 20B, 20C, 20F, and 25C, regulatory years 1997–1998 through 1999–2000

	Method of take				Method of transportation			
Regulatory	Ground			Other/		Dogsled/		Other/Unk/
year/Species	shooting	Trapping	Snaring	unk	Airplane	snowshoe/skis	Snowmachine	Highway
1997-1998								
Beaver	1	15	83	0	0	9	72	20
Otter	3	74	24	0	0	11	84	5
Lynx	0	85	14	0	0	10	85	5
Wolverine	0	86	14	0	0	2	98	0
1998–1999								
Beaver	1	15	81	4	0	13	68	18
Otter	10	62	29	0	0	14	76	10
Lynx	0	78	19	3	0	6	82	13
Wolverine	7	81	11	0	11	19	67	4
1999–2000								
Beaver	4	13	81	3	0	20	69	12
Otter	0	94	3	3	0	13	84	3
Lynx	2	78	18	3	0	9	82	9
Wolverine	7	57	33	2	0	12	81	7

# SPECIES MANAGEMENT REPORT

Alaska Department of Fish and Game Division of Wildlife Conservation (907) 465-4190 PO BOX 25526 JUNEAU, AK 99802-5526

## FURBEARER MANAGEMENT REPORT

From: 1 July 1997 To: 30 June 2000

## **LOCATION**

GAME MANAGEMENT UNIT: 20D (5633 mi<sup>2</sup>)

GEOGRAPHIC DESCRIPTION: Central Tanana Valley near Delta Junction

## **BACKGROUND**

Furbearers are an important natural resource in Unit 20D. Species include beaver, coyote, lynx, marten, mink, muskrat, otter, red fox, red squirrel, weasel, wolverine, and wolf. Wolves are discussed in a separate management report. Both recreational and commercial trappers use the area. Competition for traplines and furbearers is intense. Much of the area is easily accessible from the road system and/or major rivers.

## MANAGEMENT DIRECTION

#### MANAGEMENT GOALS

- > Provide for an optimal harvest of furbearers.
- > Provide the greatest opportunity to participate in hunting and trapping furbearers.

## **MANAGEMENT OBJECTIVES**

Monitor furbearer population trends and annual harvests of furbearers using sealing documents, fur acquisition reports, fur export reports, trapper questionnaires, and trapper interviews.

- > Seal furs as they are harvested and presented for sealing and analyze harvest patterns.
- ➤ Conduct trapper questionnaires and interviews as a basis for determining the status of various furbearer populations.

Monitor trends in abundance of furbearer prey species by establishing snowshoe hare and small mammal trend surveys.

> Conduct snowshoe hare surveys and small mammal trap line surveys to monitor prey abundance.

Determine lynx reproductive status by purchasing and examining lynx carcasses and reproductive tracts as needed.

> Purchase lynx carcasses from trappers and examine them for reproductive status as needed.

## **METHODS**

We collected harvest data for beaver, lynx, otter, and wolverine by requiring trappers to have their furs sealed. Additional information collected at the time of sealing included: name of trapper; location of harvest; date of harvest; pelt measurements for beaver, lynx, and otter; sex of the furbearer except for beaver; method of take; and method of transportation used.

We mailed questionnaires to trappers in Unit 20D through the Statewide Furbearer Management Program. Trappers were asked to rate species abundance as scarce, common, or abundant. They were also asked to rate species population trends as fewer, same, or more than the previous year.

We purchased lynx carcasses from trappers for \$10 each. Carcasses were kept frozen until they could be examined to determine age, sex, and reproductive status of females.

A snowshoe hare population trend index was completed in conjunction with a nongame breeding bird survey (BBS). The BBS was conducted by surveying the Richardson Highway from Milepost 256.2 to 230.4. It required the surveyor to stop at one-half mile intervals for 3 minutes at each stop. The survey was begun at one-half hour before sunrise (approximately 3:00 A.M.) in late June or early July. All hares seen during the survey were counted.

## **RESULTS AND DISCUSSION**

#### POPULATION STATUS AND TREND

Lynx carcasses were purchased from Unit 20D trappers with 35 purchased during RY97, 62 during RY98, and 82 carcasses purchased during RY99 (Table 1). Percent kittens among the necropsy samples decreased from 46% in RY97 to 26% in RY99 indicating decreased reproductive performance among lynx in Unit 20D. Mean age decreased from 2.3 years in RY97 to 1.5 in RY99. This data will be pooled with results from the remainder of Game Management Unit 20 to determine overall productivity and population trends.

Counts of snowshoe hares, obtained during the Donnelly Dome BBS continued to increase from a low of 4 in 1995 to a high of 85 in 1999. The number of hares then declined substantially after 1999 to 43 in 2000 indicating that the hare population has likely peaked and started to decline in this portion of Unit 20D (Table 2).

Furbearer and prey population abundance and trends based on responses to trapper questionnaires during RY97 and RY98 of this reporting period were reviewed and discussed in Parker-McNeil (1999) and Kephart (2000).

Population Size

Population size was unknown for furbearers in Unit 20D.

Population Composition

Population composition was unknown for furbearers in Unit 20D.

Distribution and Movements

No work was performed to determine furbearer distribution and movements during this report period.

#### **MORTALITY**

Harvest

Season and Bag Limit. Unit 20D furbearer seasons and bag limits are listed in Table 3.

<u>Board of Game Actions and Emergency Orders</u>. The lynx trapping season was adjusted annually by emergency orders issued by the department as part of a lynx harvest tracking system.

In October 1997, an emergency order was issued to correct a mistake in the Alaska Administrative Code and the trapping regulation book that erroneously listed the opening date for trapping mink, weasel, and land otter as November 10 instead of the correct date of November 1.

<u>Hunter/Trapper Harvest</u>. Estimates of Unit 20D furbearer harvest are available for species that were sealed.

The RY97 through RY99 beaver harvest averaged 30 beaver/year (range = 16–40) (Table 4). Although this is an increase over the mean harvest of 23/year during the last reporting period, it is still substantially lower than the high harvest reported in RY86 and 87. Juveniles represented 19% of the harvest during this reporting period.

Reported lynx harvest increased significantly this reporting period, averaging 142/year (range = 122–160) compared to an average harvest of 36/year during the last reporting period (Table 3). The increased harvest was due to higher numbers of lynx, longer trapping seasons, and greater interest by trappers to trap lynx.

Otter harvest during this reporting period was typically low, with an average harvest of 4 otter/year (range = 3–4), compared to an average harvest of 3 otters/year during the last reporting period (Table 4).

Wolverine harvest during this reporting period was highly variable and did not vary significantly from previous years. Harvest ranged from a high of 13 in RY97 to a low of only 3 in RY98 (Table 4).

<u>Harvest Chronology</u>. The majority of beavers were harvested in March during this reporting period (Table 5).

Lynx were only captured during the legal trapping season, which included portions of December, January, and February (Table 3). Lynx were caught continuously during the trapping season with no clear trends in chronology (Table 5).

There was no clear pattern in otter or wolverine harvest and both species were captured randomly throughout the season (Table 5).

<u>Method of Take</u>. Traps and snares were the most commonly used method for capturing all furbearers in Unit 20D during this reporting period (Table 4).

<u>Transport Methods</u>. Snowmachines continued to be the most commonly used means of transportation for beaver, lynx, otter, and wolverine trappers in Unit 20D (Table 6).

Other Mortality

Rates of natural mortality were unknown for furbearers in Unit 20D.

#### **HABITAT**

Assessment and Enhancement

No habitat assessment or enhancement was accomplished during this report period.

## CONCLUSIONS AND RECOMMENDATIONS

Furbearer management objectives were met by monitoring population trends and harvest through sealing selected furs and conducting trapper questionnaires. The trend in beaver harvest was increasing but was still below the high harvest of RY86 and RY87. Lynx harvest increased substantially due to increased population size, longer trapping seasons, and greater trapping pressure. The trend in snowshoe hare population size peaked and began declining during this reporting period indicating that lynx populations will begin declining in the near future. Reported harvest of otter and wolverine was variable. No changes in furbearer trapping or hunting regulations are recommended at this time other than annual adjustments in the lynx season via the harvest tracking strategy.

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Table 1 Unit 20D lynx carcass data, regulatory years 1994–1995 through 1999–2000

Regulatory									$\overline{x}$ Age	$\overline{x}$ No. kittens	
year	No. m	ale (%)	No. fer	nale (%)	No. a	dult (%)	No. ki	ittens (%)	of adults	per adult females	n
1994–1995	4	(50)	4	(50)	7	(88)	1	(13)	4	4	8
1995–1996	5	(56)	4	(44)	6	(67)	2	(22)	na	na	9
1996–1997	0	(0)	0	(0)	0	(0)	0	(0)	na	na	0
1997-1998	17	(49)	18	(51)	19	(54)	16	(46)	2.3	2.2	35
1998-1999	34	(55)	28	(45)	48	(77)	14	(23)	1.4	1.9	62
1999-2000	47	(57)	35	(43)	60	(73)	21	(26)	1.5	2.8	82

Table 2 Snowshoe hare numbers seen during the Donnelly Dome Breeding Bird Survey, Unit 20D, 1995–2000

	Number of
Year	hares
1995	4
1996	24
1997	46
1998	73
1999	85
2000	43

Table 3 Furbearer trapping and hunting seasons in Unit 20D, regulatory years 1997–1998 through 1999–2000

Species/	Trapp	ing		Hunting
Regulatory year	Trapping season	Bag limit	Hunting season	Bag limit
Beaver				
1997–1998	1 Nov-15 Apr	25	No open season	
1998–1999	1 Nov-15 Apr	25	No open season	
1999–2000	1 Nov-15 Apr	25	No open season	
Coyote				
1997–1998	1 Nov-31 Mar	No limit	1 Sep-30 Apr	2
1998–1999	1 Nov-31 Mar	No limit	1 Sep-30 Apr	10, no more than 2 before 1 Oct
1999–2000	1 Nov-31 Mar	No limit	1 Sep–30 Apr	10, no more than 2 before 1 Oct
Lynx				
1997–1998	1 Dec-15 Feb	No limit	1 Dec-31 Jan	2
1998–1999	1 Dec-28 Feb	No limit	1 Dec-31 Jan	2
1999–2000	1 Dec–28 Feb	No limit	1 Dec-31 Jan	2
Marten				
1997–1998	1 Nov-28 Feb	No limit	No open season	
1998–1999	1 Nov-28 Feb	No limit	No open season	
1999–2000	1 Nov–28 Feb	No limit	No open season	
Mink				
1997–1998	1 Nov-28 Feb	No limit	No open season	
1998–1999	1 Nov-28 Feb	No limit	No open season	
1999–2000	1 Nov–28 Feb	No limit	No open season	
Muskrat				
1997–1998	1 Nov-10 Jun	No limit	No open season	
1998–1999	1 Nov-10 Jun	No limit	No open season	
1999–2000	1 Nov-10 Jun	No limit	No open season	

Species/	Trappi	ing		Hunting
Regulatory year	Trapping season	Bag limit	Hunting season	Bag limit
Otter				
1997-1998	1 Nov-15 Apr	No limit	No open season	
1998–1999	1 Nov-15 Apr	No limit	No open season	
1999–2000	1 Nov-15 Apr	No limit	No open season	
Red Fox				
1997-1998	1 Nov-28 Feb	No limit	1 Sep-15 Mar	10, no more than 2 before 1 Oct
1998-1999	1 Nov-28 Feb	No limit	1 Sep–15 Mar	10, no more than 2 before 1 Oct
1999–2000	1 Nov–28 Feb	No limit	1 Sep–15 Mar	10, no more than 2 before 1 Oct
Red Squirrel				
1997–1998	No closed season	No limit	No closed season	No limit
1998–1999	No closed season	No limit	No closed season	No limit
1999–2000	No closed season	No limit	No closed season	No limit
Weasel				
1997-1998	1 Nov-28 Feb	No limit	No open season	
1998–1999	1 Nov-28 Feb	No limit	No open season	
1999–2000	1 Nov–28 Feb	No limit	No open season	
Wolverine				
1997-1998	1 Nov-28 Feb	No limit	1 Sep–31 Mar	1
1998-1999	1 Nov-28 Feb	No limit	1 Sep–31 Mar	1
1999–2000	1 Nov-28 Feb	No limit	1 Sep–31 Mar	1

Table 4 Unit 20D beaver, lynx, otter, and wolverine harvest, regulatory years 1986–1987 through 1999–2000

			Repo	orted harve	est						
Regulatory		Sex	<u> </u>		Age			Method	of take		Total
year	M	F	Unk	Juv <sup>a</sup>	Adults	Unk	Trap/snare	Shot	L&S <sup>b</sup>	Unk	harvest
Beaver											
1986-1987			70	13	57	0	64	0	0	6	70
1987-1988			85	21	64	0	75	3	0	7	85
1988-1989			34	2	22	10	25	0	0	9	34
1989-1990			18	1	17	0	18	0	0	0	18
1990-1991			23	1	22	0	21	0	0	2	23
1991-1992			35	2	33	0	35	0	0	0	35
1992-1993			6	0	6	0	6	0	0	0	6
1993-1994			12	2	10	0	12	0	0	0	12
1994-1995			37	8	24	5	34	3	0	0	37
1995-1996			15	2	13	0	15	0	0	0	15
1996-1997			18	6	12	0	18	0	0	0	18
1997-1998			40	3	37	0	40	0	0	0	40
1998-1999			16	1	15	0	7	0	0	9	16
1999–2000			34	13	21	0	34	0	0	0	34
Lynx											
1986–1987				4	16	0	20	0	0	0	20
1987–1988				4	13	0	17	0	0	0	17
1988–1989				1	9	0	8	2	0	0	10
1989–1990				0	4	0	4	0	0	0	4
1990–1991				3	19	1	23	0	0	0	23
1991–1992				9	38	1	45	1	0	2	48
1992–1993				16	79	1	85	6	0	9	96
1993-1994				5	35	0	40	0	0	0	40
1994–1995				7	26	2	33	0	0	2	35
1995–1996				12	14	0	26	0	0	0	26
1996–1997				6	37	4	46	0	0	1	47
1997–1998				52	91	1	143	1	0	0	144
1998–1999				22	86	14	122	0	0	0	122
1999–2000				37	120	3	145	4	0	11	160

			Repo	rted harve	est						
Regulatory		Sex	ζ		Age			Method	of take		Total
year	M	F	Unk	Juv <sup>a</sup>	Adults	Unk	Trap/snare	Shot	L&S <sup>b</sup>	Unk	harvest
Otter							-				
1986-1987	3	2	1				6	0	0	0	6
1987-1988	2	1	0				2	1	0	0	3
1988-1989	2	0	4				6	0	0	0	6
1989-1990	0	0	0				0	0	0	0	0
1990-1991	0	1	0				1	0	0	0	1
1991-1992	2	1	0				3	0	0	0	3
1992-1993	0	0	0				0	0	0	0	0
1993-1994	1	0	2				1	0	0	2	3
1994-1995	2	1	2				5	0	0	0	5
1995-1996	0	2	0				2	0	0	0	2
1996-1997	0	1	1				2	0	0	0	2
1997-1998	3	0	1				4	0	0	0	4
1998-1999	0	0	4				4	0	0	0	4
1999–2000	0	1	2				3	0	0	0	3
Wolverine											
1986-1987	5	0	1				5	1	0	0	6
1987-1988	3	3	0				6	0	0	0	6
1988-1989	8	6	1				15	0	0	0	15
1989-1990	3	2	2				6	1	0	0	7
1990-1991	5	1	1				7	0	0	0	7
1991-1992	9	3	0				12	0	0	0	12
1992-1993	3	3	0				6	0	0	0	6
1993-1994	2	2	5				9	0	0	0	9
1994-1995	5	7	0				12	0	0	0	12
1995–1996	0	2	0				2	0	0	0	2
1996–1997	3	2	1				6	0	0	0	6
1997–1998	7	5	1				13	0	0	0	13
1998–1999	3	0	0				3	0	0	0	3
1999–2000	3	3	0				6	0	0	0	6

<sup>&</sup>lt;sup>a</sup> Beavers ≤52"; lynx ≤35" in length.

<sup>&</sup>lt;sup>b</sup> L&S (land and shoot) refers to animals taken by hunters the same day hunters were airborne.

 $Table\ 5\ Unit\ 20D\ beaver,\ lynx,\ otter,\ and\ wolverine\ harvest\ chronology\ percent,\ regulatory\ years\ 1986-1987\ through\ 1999-2000$ 

Species/				Harvest p	periods			
Regulatory year	Sep/Oct	Nov	Dec	Jan	Feb	Mar	Apr	Unk
Beaver	•						•	
1986-1987	0	1	11	6	16	56	9	0
1987-1988	2	2	28	1	4	45	15	0
1988-1989	0	0	12	0	18	47	9	0
1989-1990	0	11	6	0	33	39	11	0
1990-1991	0	9	9	0	0	74	0	0
1991-1992	0	0	3	0	6	49	43	0
1992-1993	0	33	0	17	17	33	0	0
1993-1994	0	17	0	8	0	42	33	0
1994-1995	8	0	5	14	5	32	35	0
1995-1996	0	20	27	7	0	47	0	0
1996–1997	0	11	28	0	6	56	0	0
1997–1998	0	0	0	5	0	55	40	5
1998–1999	0	ő	0	0	0	25	19	56
1999–2000	0	0	18	6	0	68	9	0
Lynx								
1986–1987	0	0	50	50	0	0	0	0
1987-1988	0	0	71	29	0	0	0	0
1988-1989	0	0	40	40	10	10	0	0
1989-1990	0	0	25	75	0	0	0	0
1990-1991	0	4	21	71	4	0	0	0
1991-1992	0	4	48	46	0	0	0	0
1992-1993	0	4	42	42	7	0	0	0
1993-1994	0	0	53	48	0	0	0	0
1994-1995	0	0	54	46	0	0	0	0
1995-1996	0	0	50	50	0	0	0	0
1996-1997	0	6	53	34	0	0	0	6
1997-1998	0	1	35	39	24	2	0	0
1998-1999	0	0	24	31	45	0	0	0
1999–2000	0	0	36	33	31	0	0	0
Otter								
1986–1987	0	0	0	60	40	0	0	0
1987–1988	0	0	33	0	0	67	0	0
1988–1989	0	0	0	67	17	17	0	0
1989–1990	0	0	0	0	0	0	0	0
1990–1991	0	0	0	0	100	0	0	0
1991–1992	0	0	0	100	0	0	0	0
1992–1993	0	0	0	0	0	0	0	0
1993-1994	0	0	0	33	67	0	0	0
1994–1995	0	0	40	40	0	0	20	0
1995–1996	0	0	0	0	100	0	0	0
1996–1997	0	0	50	0	50	0	0	0
1997–1998	0	25	0	25	0	50	0	0
1998-1999	0	50	25	25	0	0	0	0
1999-2000	0	0	67	33	0	0	0	0

Species/				Harvest p	periods			
Regulatory year	Sep/Oct	Nov	Dec	Jan	Feb	Mar	Apr	Unk
Wolverine								
1986-1987	17	0	17	33	17	17	0	0
1987-1988	0	0	17	83	0	0	0	0
1988-1989	0	7	33	47	7	0	0	0
1989-1990	0	0	0	14	29	57	0	0
1990-1991	0	0	14	29	57	0	0	0
1991-1992	17	25	17	42	0	0	0	0
1992-1993	17	33	17	33	0	0	0	0
1993-1994	11	67	22	0	0	0	0	0
1994-1995	0	0	17	42	42	0	0	0
1995-1996	0	0	0	33	67	0	0	0
1996-1997	0	0	17	0	67	17	0	0
1997-1998	0	0	15	23	54	8	0	0
1998-1999	0	0	0	67	33	0	0	0
1999–2000	0	0	50	17	17	17	0	0

Table 6 Unit 20D harvest percentage by transport method<sup>a</sup>, regulatory years 1986–1987 through 1999–2000

				Harve	est percent by trans	port method				
Species/Regulatory				3- or			Highway	Skis,		
year	Airplane	Dogsled	Boat	4-Wheeler	Snowmachine	ORV	vehicle	Snowshoes	Other	Unk
Beaver										
1986–1987	0	19	6	19	43	0	6	9		0
1987-1988	0	2	6	0	51	0	33	8		0
1988-1989	0	0	26	0	59	0	12	3		0
1989-1990	0	0	0	0	0	0	17	83 <sup>a</sup>		0
1990-1991	0	26	0	0	65	0	0	9		0
1991-1992	0	0	9	0	91	0	0	0		0
1992-1993	0	0	0	0	100	0	0	0		0
1993-1994	0	0	58	0	33	0	8	0		0
1994-1995	3	0	35	0	54	0	8	0		0
1995-1996	0	0	0	0	60	0	40	0		0
1996-1997	0	6	0	0	72	0	22	0		0
1997-1998	0	0	35	0	60	0	0	0	5	0
1998-1999	0	0	19	0	25	0	0	0	56	0
1999–2000	0	0	15	0	79	0	0	6	0	0
Lynx										
1986–1987	10	0	0	5	85	0	0	0		0
1987-1988	6	6	0	0	78	0	12	0		0
1988-1989	0	0	0	0	80	0	20	0		0
1989-1990	0	0	0	0	100	0	0	0		0
1990-1991	0	0	0	0	100	0	0	0		0
1991-1992	0	2	0	0	71	0	17	6		4
1992-1993	0	1	0	4	66	4	10	6		9
1993-1994	0	0	0	0	73	5	23	0		0
1994-1995	0	0	0	0	63	0	26	9		3
1995-1996	0	4	0	0	92	0	0	4		0
1996-1997	0	2	0	2	64	0	28	4		0
1997-1998	0	1	0	0	85	0	14	1	0	0
1998-1999	0	0	0	0	75	0	21	3	0	0
1999–2000	3	0	0	0	81	0	10	1	5	0

		Harvest percent by transport method												
Species/Regulatory				3- or			Highway	Skis,						
year	Airplane	Dogsled	Boat	4-Wheeler	Snowmachine	ORV	vehicle	Snowshoes	Other	Unk				
Otter														
1986-1987	0	0	0	0	83	17	0	0		0				
1987-1988	0	0	0	0	100	0	0	0		0				
1988-1989	0	0	0	0	100	0	0	0		0				
1989-1990	0	0	0	0	100	0	0	0		0				
1990-1991	0	0	0	0	0	0	0	0		1				
1991-1992	0	0	0	0	67	0	0	33		0				
1992-1993	0	0	0	0	0	0	0	0		0				
1993-1994	0	0	0	0	33	0	0	0		67				
1994-1995	0	0	20	80	0	0	0	0						
1995-1996	0	0	0	0	100	0	0							
1996-1997	0	0	0	0	100	0	0							
1997-1998	0	0	0	0	75	0	0	25	0	0				
1998-1999	0	0	0	0	50	0	25	25	0	0				
1999–2000	0	0	67	0	33	0	0	0	0	0				
Wolverine														
1986-1987	17	33	0	0	33	17	0	0		0				
1987-1988	0	0	0	0	100	0	0	0		0				
1988-1989	0	0	0	0	87	0	0	13		0				
1989-1990	0	29	0	0	43	0	0	29		0				
1990-1991	14	0	0	0	57	0	0	29		0				
1991-1992	33	0	0	0	58	0	8	0		0				
1992-1993	17	0	0	0	83	0	0	0		0				
1993-1994	0	0	0	0	78	0	0	22		0				
1994-1995	17	8	0	0	75	0	0	0		0				
1995-1996	0	0	0	0	100	0	0	0		0				
1996–1997	0	0	0	0	100	0	0	0		0				
1997–1998	0	0	0	0	100	0	0	0	0	0				
1998–1999	0	0	0	0	67	0	33	0	0	0				
1999–2000	0	0	0	0	100	0	0	0	0	0				

<sup>&</sup>lt;sup>a</sup> Transportation codes were revised in 1989, however, some errors may exist due to use of some old sealing certificates.

# SPECIES MANAGEMENT REPORT

Alaska Department of Fish and Game Division of Wildlife Conservation (907) 465-4190 PO BOX 25526 JUNEAU, AK 99802-5526

## FURBEARER MANAGEMENT REPORT

From: 1 July 1997 To: 30 June 2000

#### LOCATION

GAME MANAGEMENT UNIT: 21 (43,925 mi<sup>2</sup>)

**GEOGRAPHIC DESCRIPTION:** Yukon River drainage above Paimuit to Tozitna River including

Koyukuk River to Dulbi Slough

### **BACKGROUND**

Furbearers have traditionally been an important resource in Unit 21. They supply food, clothing, and trade items. With the arrival of Europeans, furbearers also became an item of commerce. Fur populations have always been sufficient to meet local demand but were subject to cycles of abundance dependant on prey populations. Snowshoe hares are the primary prey species for lynx, red fox, and wolverine, but increases in ptarmigan and grouse numbers can also support increased numbers of these furbearers. The innumerable lakes, rivers and streams found in Unit 21 support a large number of water dependant furbearers such as beaver, mink, river otter and muskrat. The following species found in Unit 21 are listed in the order of their economic importance: marten, beaver, lynx, wolverine, wolf, red fox, mink, river otter, and muskrat. Wolves are discussed in detail in a separate management report. Coyotes are rare. Weasels and red squirrels are common but not usually targeted by trappers.

## MANAGEMENT DIRECTION

#### MANAGEMENT GOALS

- ➤ Protect, maintain, and enhance the furbearer populations and their habitats in concert with other components of the ecosystem.
- ➤ Provide for continued use of furbearers by local Alaskan residents who have customarily and traditionally used the population.
- > Provide an opportunity to view and photograph furbearers.
- > Provide for scientific and educational use of furbearers.

## MANAGEMENT OBJECTIVE

Monitor populations through fur sealing.

#### **METHODS**

We monitored harvest through sealing records, fur export reports, fur acquisition reports, and personal interviews. We interviewed some trappers about furbearer abundance, reviewed trapper questionnaires, and gathered incidental data during surveys of other species and other field activities. Beaver cache surveys were conducted in the fall by the Koyukuk/Nowitna National Wildlife Refuge staff to determine the relative number of active lodges on the Koyukuk, Nowitna, and Northern Innoko Refuges.

## **RESULTS AND DISCUSSION**

#### POPULATION STATUS AND TREND

Population Size

During this report period, beavers and river otters were found throughout the unit in suitable habitat. Beaver populations were high and stable. Koyukuk/Nowitna NWR cache surveys in 1999 counted 170 active caches  $(0.8/\text{mi}^2)$  on the Northern Innoko NWR, and a survey in 2000 on the Koyukuk NWR counted 351 active caches  $(1.1/\text{mi}^2)$ . The number of active caches had declined on the Northern Innoko NWR where 280 caches  $(1.3/\text{mi}^2)$  were counted in 1991. The number increased on the Koyukuk NWR where only 291 active caches  $(0.9/\text{mi}^2)$  were counted in 1991. A survey conducted on the Nowitna NWR in 1993 counted 257 active caches  $(0.6/\text{mi}^2)$  (US Fish and Wildlife Service [FWS], unpublished data).

Muskrats were on a long-term decline during this report period. Numerous hypotheses were suggested for this decline, ranging from of loss of habitat resulting from pond succession to predation by pike. Lynx were in the high phase of their 10-year cycle during the RY00 season. Red foxes were numerous throughout the unit, but appeared stable or slightly increasing.

Marten populations were moderate throughout most of the northern half of the unit during this reporting period. Local pockets of lower or higher marten numbers occurred but the population trend appeared stable. Most trappers reported that martens were absent at various times during the trapping season. These apparent absences were temporary and were caused either by local migrations or by restricted movement of the animals.

In Unit 21B, the FWS trapped in post-fire forest stands (Johnson et al. 1995). They found highest densities of voles and shrews in a new burn (1985) followed by the mature forest and old burn (1966). Hare populations were increasing throughout the unit in RY99 and RY00, based on observed increases in track density. Willow ptarmigan were at very high numbers in RY00 and RY01. Grouse populations appeared higher in RY99.

## Distribution and Movements

All furbearer species were found throughout the unit. FWS radiotagged martens in the Nowitna River drainage in Unit 21B from 1991 through 1994 (Johnson et al. 1995). Results of this study, indicated marten were most abundant in a 1985 burn and least abundant in a 1966 burn. The upland area of the unburned mature forest was preferred to drainage areas.

#### **MORTALITY**

Harvest

## Trapping Seasons and Bag Limits.

Species		Season	Bag limit
Beaver		1 Nov-10 Jun	No limit
Coyote		1 Nov-31 Mar	No limit
Lynx		1 Nov-28 Feb	No limit
Marten		1 Nov-28 Feb	No limit
Mink	and	1 Nov-28 Feb	No limit
Weasel			
Muskrat		1 Nov-10 Jun	No limit
Red Fox		1 Nov-28 Feb	No limit
River Otter		1 Nov-15 Apr	No limit
Wolverine		1 Nov–31 Mar	No limit

## **Hunting Seasons and Bag Limits.**

Species	Season	Bag limit
Coyote	1 Sep-30 Apr	10
Red Fox	1 Sep-15 Mar	10
Lynx	1 Nov-28 Feb	2
Wolverine	1 Sep-31 Mar	1

<u>Board of Game Actions and Emergency Orders</u>. In 1997 the Board of Game standardized the season and bag limit for beaver in all for Unit 21 to 1 November through 10 June with no limit. During the past 13 years trapping seasons and bag limits remained the same for marten, coyote, lynx, fox, mink, muskrat, otter, and wolverine.

## <u>Trapper Harvest</u>.

Beaver — During the report period, harvest of beavers from the unit was low (Table 1), compared with harvests of over 1000 during the late 1980s. The overall catch was only a fraction of the harvestable population, mostly attributable to low pelt prices. Total harvest is certainly higher than the reported harvest from sealing reports. Many rural residents still do not understand that sealing is also required for personal-use furs. Also, harvest of beavers is often for food, therefore fur handling has a lower priority.

Kit harvest was low mainly because of the trapping techniques employed (Table 2). Experienced trappers used snares with large diameter openings and placed their sets outside food caches, away from lodges. Trapper effort was greatest during spring (Table 3).

Lynx — Lynx populations reached the low point of their 10-year cycle during the mid 1980s. Populations peaked during the 1991–1992 season, then declined. Lynx numbers were increasing toward the end of this reporting period, and harvest had increased (Tables 1 and 2). However, trapper effort was still relatively minimal because of low pelt prices. If pelt prices increase, trapper effort and harvest are expected to increase.

Otter — Although otters were abundant in the unit, harvest remained relatively low but stable (Tables 1 and 2). Pelt prices for Interior otters were low, and trapping effort was minimal. Most of the harvest occurred when otters were incidentally taken in beaver sets, and therefore harvest levels are consistent with beaver trapping efforts.

Wolverine — Harvest of wolverines was stable (Tables 1 and 2). Numerous wolverine tracks were seen in Unit 21D during aerial wolf surveys in March 1999 and 2000 and moose stratification surveys in Unit 21B in April 2000. These observations suggested population levels were stable as well. Wolverines were one of the few species for which fur prices held stable at a reasonably high level during the reporting period.

Other Species — Marten numbers were moderate in the northern part of the unit, and are typically found in pockets of relatively higher or lower densities in different areas of the unit. Harvest during the mid 1990s was greatly reduced due to low trapping effort and low prices. Increased pelt prices for the 1996–1997 season resulted in a more than 5-fold increase in harvest (Table 4). Fox populations were high; however, pelt prices were low and trappers had little incentive to pursue this species. Coyotes were scarce, but a few were caught each year. Wolves were abundant in the unit, and predation of wolves on coyotes may have kept coyote numbers low. Mink were a minor furbearer in the unit. Pelt prices for wild-caught, Interior mink was low, therefore few trappers target them.

Trapping Conditions — Weather varied over the past 3 years, with some extended periods of cold weather in RY98 and RY99. Snowfall was lower than normal however, so access was not limiting. Overall, trapping conditions were adequate for most trappers.

## CONCLUSIONS AND RECOMMENDATIONS

With the exception of coyotes and muskrats, furbearer populations throughout the unit were stable or increasing and were at moderate-to-high levels. We were not aware of any areas with excessive harvest. As long as fur prices remain depressed, it is doubtful any significant increases in harvest will occur for any of the species. I recommend continuing the present seasons and bag limits. Marten seasons should be reviewed annually. Population trend information for all species can be gathered from trapper questionnaires, discussions with local fish and game advisory committees, and trapper interviews.

All of the management goals for the previous reporting period were apparently met. However, no efforts were made to determine an amount of interest in photographing, viewing or other uses of furbearers in the area. I assume that because furbearer population levels were relatively stable, the potential for all other activities was maintained. The goal of maintaining adequate populations to support traditional uses was met. The objective of monitoring harvest through fur

sealing was also met. Management goals and objectives will be changed to the following for the next management period:

#### MANAGEMENT GOALS

- > Protect, maintain, and enhance the furbearer populations and their habitats in concert with other components of the ecosystem.
- > Provide for continued use of furbearers by local Alaskan residents who have customarily and traditionally depended on these populations.

#### MANAGEMENT OBJECTIVE

Maintain populations of furbearers that will support a minimum level of harvest equal to the mean of the harvest of each species from RY89–RY99.

## **MANAGEMENT ACTIVITIES**

- Monitor harvest through fur sealing records, fur acquisition reports and fur export permits.
- Monitor furbearer populations by reconnaissance surveys, trapper questionnaires and trapper interviews.

## LITERATURE CITED

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Table 1 Unit 21 reported harvest of sealed furbearer species, regulatory years 1989-1990 through 1999-2000

Regulatory		Spe	cies	
year	Beaver	Lynx	Otter	Wolverine
1989–1990	279	13	17	15
1990-1991	365	12	32	23
1991-1992	319	69	26	29
1992-1993	218	26	10	8
1993-1994	270	40	17	39
1994–1995	417	22	36	27
1995-1996	218	4	22	11
1996-1997	564	35	49	31
1997-1998	508	30	25	22
1998-1999	263	31	10	18
1999-2000	268	78	16	27

Table 2 Unit 21 beaver, lynx, otter, and wolverine harvest regulatory years 1989–1990 through 1999–2000

Regulatory			Report	ed harv	est		Estimated l	narvest	Method of take					Successful
year	M	F	Unk	Juv <sup>a</sup>	Adults	Unk	Unreported	Illegal	Trap/snare	Shot	(L&S)	Unk	Total	Trappers/hunters
Beaver							_	=:	-					<u> </u>
1989-1990				23	279	0	0	0	265	0		14	302	33
1990-1991				38	365	0	0	0	345	20		0	403	32
1991-1992				46	269	0	0	0	315	0		4	319	25
1992-1993				79	139	0	0	0	218	0		0	218	16
1993-1994				38	232	0	0	0	270	0		0	270	30
1994–1995				55	362	0	0	0	388	0		29	417	29
1995-1996				10	207	11	0	0	176	31		21	228	23
1996–1997				26	537	1	0	0	564	0		0	564	45
1997–1998				10	498	0	0	0	508	0		0	508	45
1998–1999				25	238	0	0	0	253	0		0	263	25
1999–2000				35	233	0	0	0	251	0		17	268	27
<u>Lynx</u>														
1989–1990				1	12	0	0	0	13	0		0	13	6
1990–1991				5	7	0	0	0	10	0		2	12	7
1991–1992				7	62	0	0	0	69	0		0	69	15
1992–1993				2	24	0	0	0	26	0		0	26	16
1993–1994				0	40	0	0	0	40	0		0	40	12
1994–1995				1	21	0	0	0	21	1		0	22	12
1995–1996				0	3	1	0	0	4	0		0	4	6
1996–1997				6	27	2	0	0	34	1		0	35	13
1997–1998				2	28	0	0	0	30	0		0	30	12
1998–1999				1	30	0	0	0	30	1		0	31	10
1999–2000				24	54	0	0	0	76	2		0	78	22
<u>Otter</u>														
1989-1990	4	4	9				0	0	15	1		1	17	8
1990–1991	15	13	4				0	0	28	4		0	32	11
1991–1992	9	12	5				0	0	26	0		0	26	13
1992–1993	2	1	7				0	0	8	0		2	10	7
1993–1994	6	2	9				0	0	15	2		0	17	6
1994–1995	15	11	10				0	0	36	0		0	36	11
1995–1996	5	4	10				0	0	19	0		0	19	15
1996–1997	24	13	12				0	0	44	0		5	49	24
1997–1998	11	5	9				0	0	25	0		0	25	17

Regulatory			Report	ed harv	est		Estimated l	narvest	N	lethod o	f take			Successful
year	M	F	Unk	Juv <sup>a</sup>	Adults	Unk	Unreported	Illegal	Trap/snare	Shot	(L&S)	Unk	Total	Trappers/hunters
1998–1999	3	1	6				0	0	10	0		0	10	7
1999–2000	3	3	10				0	0	14	1		1	16	8
Wolverine														
1989-1990	10	4	1				10	0	15	0		10	25	11
1990-1991	12	9	2				10	0	22	1		10	33	21
1991-1992	16	8	5				10	0	26	3		10	39	24
1992-1993	3	3	2				10	0	8	0		10	18	7
1993-1994	14	23	2				10	0	36	2		11	49	18
1994-1995	13	11	3				10	0	24	2		11	37	8
1995-1996	7	4	0				10	0	6	5		10	21	15
1996-1997	21	9	1				10	0	20	3		18	41	17
1997-1998	17	3	2				10	0	22	0		10	32	17
1998-1999	14	3	1				10	0	17	1		10	28	13
1999–2000	14	10	3				10	0	25	2		10	37	17

<sup>&</sup>lt;sup>a</sup> Juveniles: Beavers <52" (length + width); lynx <34" in length.

Table 3 Unit 21 beaver, lynx, otter, and wolverine harvest chronology by month, regulatory years 1989–1990 through 1999–2000

Regulatory				Harvest p	eriods			
year	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Beaver						-	•	
1989–1990	13	45	20	48	126	27		
1990-1991	17	22	68	68	210	5		
1991-1992	44	15	17	102	110	27		
1992-1993	5	42	11	45	102	2		
1993-1994	14	27	57	89	74	9	0	0
1994–1995	8	86	54	156	113	0	0	0
1995-1996	10	4	1	36	79	44	34	0
1996–1997	0	39	45	121	346	13	0	0
1997-1998	5	45	13	189	220	13	0	0
1998–1999	7	18	21	47	167	3	0	0
1999-2000	43	1	2	69	145	2	0	0
<u>Lynx</u>								
1989-1990	0	3	4	6				
1990-1991	5	1	3	3				
1991–1992	2	17	17	32				
1992–1993	5	7	10	3				
1993-1994	0	12	14	14				
1994–1995	1	1	15	5				
1995–1996	0	3	1	0				
1996–1997	0	15	0	17	3			
1997–1998	0	4	1	18	7			
1998–1999	0	13	10	7	1			
1999–2000	1	21	19	36	1			
<u>Otter</u>								
1989–1990	2	10	0	1	4	0		
1990–1991	3	7	12	9	1	0		
1991–1992	7	3	4	7	4	0		
1992–1993	3	2	0	0	2	1		
1993–1994	0	2	4	5	3	2		
1994–1995	0	15	11	5	4	0		
1995–1996	1	8	0	3	6	1		
1996–1997	2	17	9	7	11	0		
1997–1998	2	6	2	2	13	0		
1998–1999	2	2	2	0	4	0		
1999-2000	1	5	3	5	0	0		

<u>Wolverine</u>							
1989-1990	0	8	4	1	2	 	
1990-1991	3	6	6	3	4	 	
1991–1992	5	5	14	6	3	 	
1992–1993	1	0	1	3	3	 	
1993-1994	6	7	11	1	1	 	
1994–1995	0	2	5	15	15	 	
1995–1996	2	3	1	5	5	 	
1996-1997	4	9	1	7	10	 	
1997-1998	4	2	5	3	8	 	
1998–1999	2	3	2	7	3	 	
1999-2000	1	7	0	12	7	 	

Table 4 Unit 21 estimated harvest<sup>a</sup> of unsealed furbearer species regulatory years 1989–1990 through 1999-2000

Regulatory			Species		
year	Coyote	Marten	Mink	Muskrat	Red Fox
1989–1990	0	2591	20	0	55
1990-1991	1	1608	27	0	15
1991-1992	0	1502	45	0	21
1992-1993	0	559	50	0	1
1993-1994	1	997	17	4	25
1994-1995	0	461	6	0	12
1995-1996	0	385	7	0	4
1996-1997	1	2072	100	33	37
1997-1998	0	231	2	0	11
1998-1999	0	256	0	0	18
1999-2000	0	778	0	0	16
<sup>a</sup> Estimates derive	d from Fur Acq	uisition Reports	and Fur Export	Permits.	

# SPECIES MANAGEMENT REPORT

Alaska Department of Fish and Game Division of Wildlife Conservation (907) 465-4190 PO BOX 25526 JUNEAU, AK 99802-5526

# FURBEARER MANAGEMENT REPORT

From: 1 July 1997 To: 30 June 2000

### **LOCATION**

GAME MANAGEMENT UNIT: 24 (26,055 mi<sup>2</sup>)

GEOGRAPHIC DESCRIPTION: Koyukuk River drainage above the Dulbi River

### **BACKGROUND**

Furbearers have traditionally been an important resource in Unit 24. They supply food, clothing, and trade items. With the arrival of Europeans, furbearers also became an item of commerce. Fur populations have always been sufficient to meet local demand but were subject to cycles of abundance dependant on prey populations. Snowshoe hares are the primary prey species for lynx, red fox, and wolverine, but increases in ptarmigan and grouse numbers can also support increased numbers of these furbearers. The innumerable lakes, rivers and streams found in Unit 24 support a large number of water dependant furbearers such as beaver, mink, river otter and muskrat. The following species found in Unit 24 are listed in the order of their economic importance: marten, wolf, beaver, lynx, wolverine, red fox, mink, river otter, and muskrat. Coyotes are rare. Weasels and red squirrels are common but not usually targeted by trappers.

### MANAGEMENT DIRECTION

### **MANAGEMENT GOALS**

- ➤ Protect, maintain, and enhance furbearer populations and their habitats in concert with other components of the ecosystem.
- ➤ Provide for continued use of furbearers by local Alaskan residents who have customarily and traditionally used the populations.
- Provide an opportunity to view and photograph furbearers.
- > Provide for scientific and educational use of furbearers.

### **MANAGEMENT OBJECTIVES**

No detailed furbearer management objectives were established for the unit. The general objective was to maintain populations at levels sufficient to provide people with sustained consumptive and nonconsumptive uses.

#### **METHODS**

We monitored harvest through sealing records, fur export reports, fur acquisition reports, and personal interviews. We interviewed trappers about furbearer abundance, reviewed trapper questionnaires, and gathered incidental data during surveys of other species and other field activities. Beaver cache surveys were conducted in the fall by the Koyukuk/Nowitna and Kanuti National Wildlife Refuge (NWR) staffs to determine the relative number of active lodges on the Koyukuk and Kanuti refuges.

### RESULTS AND DISCUSSION

### POPULATION STATUS AND TREND

Population Size

Marten and red fox populations were moderately high throughout the unit and increasing in some areas. Marten tracks were particularly abundant in old burns west of the Koyukuk River in the lower Alatna River drainage (1999 moose survey observations, ADF&G files, Galena) and in the Huslia River drainage (2000 wolf survey observations, ADF&G files, Galena). Wolverine abundance was moderate and stable.

Beavers and river otters were increasing in the southern portion of the unit and were high and increasing in the northern portions. Beaver cache surveys conducted in 1995 established a baseline of 484 active caches (Kanuti NWR unpublished data, Fairbanks). A large number of otter tracks were seen on the Kanuti River Flats during the 1999 moose survey (ADFG files, Galena). Beaver cache surveys conducted by the Koyukuk NWR in 1991 found 291 active caches (0.9/mi²). Surveys in 2000 on the Koyukuk NWR found 351 active caches (1.1/mi²) (Koyukuk NWR, unpublished data, Galena). The Koyukuk NWR lies partially within the boundaries of both Game Management Units 24 and 21D.

Muskrats were on a longterm decline as they were in neighboring Unit 21D. One factor in this decline may be habitat loss. Many lakes and sloughs in the area were filling in with silt and drying up as a result of a longterm drying trend that is taking place throughout much of the Interior. Lynx were increasing in many parts of the unit during the end of the reporting period (2000 wolf survey observations, trapper interviews). The last peak of the lynx cycle was in RY91 (RY= 1 Jul through 30 Jun, e.g., RY99 = 1 Jul 1999 through 30 Jun 2000). Coyotes are rarely seen in Unit 24.

Small mammal prey populations in the southwestern part of the unit are abundant, based on the snap-trap collections by Koyukuk National Wildlife Refuge staff. Snowshoe hare populations were building toward the end of the reporting period. Hare populations were moderate to high in some parts of the unit. The grouse densities were moderate to low but ptarmigan numbers were very high near the end of the reporting period.

### **DISTRIBUTION AND MOVEMENTS**

Most of the furbearer species were found in the unit during the reporting period. Some reached the northern limits of their ranges in the southern Brooks Range. No radiotagging studies of furbearers were conducted in Unit 24.

### **MORTALITY**

Harvest

# Trapping Seasons and Bag Limits.

Species	Season	Bag limit
Beaver	1 Nov-10 Jun	No limit
Coyote	1 Nov–31 Mar	No limit
Red Fox	1 Nov–28 Feb	No limit
Marten	1 Nov–28 Feb	No limit
Mink & Weasel	1 Nov–28 Feb	No limit
Muskrat	1 Nov-10 Jun	No limit
Lynx	1 Nov–28 Feb	No limit
River Otter	1 Nov-15 Apr	No limit
Wolverine	1 Nov–31 Mar	No limit

# **Hunting Seasons and Bag Limits.**

Species	Season	Bag limit
Coyote	1 Sep-30 Apr	2
Red Fox	1 Sep-15 Mar	10
Lynx	1 Nov–28 Feb	2
Wolverine	1 Sep–31 Mar	1

<u>Board of Game Actions and Emergency Orders</u>. Beginning in RY92, the Board of Game changed the bag limit for beaver from 50 per year to no limit. In RY96 the beaver season was extended to 10 June. During the past 13 years, trapping seasons and bag limits remained the same for marten, coyote, lynx, fox, mink, muskrat, otter, and wolverine.

<u>Trapper Harvest</u>. Beaver harvest declined to low levels in the early 1990s, but increased to a one-year high of 654 in RY96 (Table 1). Harvest during the reporting period was greater than the 11-year average of 278 in RY97, but lower in RY98 and RY99. Prices have typically determined the harvest more than bag limits. Total harvest is certainly higher than the reported harvest from

sealing reports. Many rural residents still do not understand that sealing is also required for personal-use furs. Also, harvest of beavers is often for food, therefore fur handling has a lower priority. Beaver kit harvest was low mainly because of trapping techniques employed (Table 2). Experienced trappers used snares with large-diameter openings and placed their sets outside food caches away from lodges. Most beaver harvest occurred in the spring (Table 3).

Harvest data supported field observations that lynx reached a high point in their 10-year cycle in RY91, and did not dramatically decline until RY94 (Table 1). Percent kittens in the harvest (Table 2) was moderate to high from RY89 through RY91 (12–24%), and declined to low levels since then. During the reporting period, increasing harvest levels, comments by trappers and incidental observations indicated the lynx population was increasing in most areas. Low pelt prices for lynx probably reduced trapper effort. No trends were evident in harvest chronology of lynx (Table 3).

Otters were abundant. However, the harvest throughout the 1990s was very low, compared to abundance (Table 1). Trapping effort was minimal (Table 2). Otters were usually taken incidentally in late-season beaver sets (Table 3).

Wolverine harvest varied during the reporting period (Table 1). Actual harvest may be higher by 10 per year because furs used for subsistence purposes were seldom sealed (Table 2). No harvest chronology pattern was readily discernible (Table 3). Swanson (1994) found a ratio of 2:1 (male:female) in 44 wolverine carcasses she examined from 1988 through 1993.

Fox populations were high, but low prices elicited little trapper interest (Table 4). The RY96 marten harvest increased tremendously compared to the previous 4 years. That increase was probably due as much to population increase as trapper effort, because marten prices remained low.

The weather was mild for most of the trapping seasons. Recent winters were characterized as having moderate-to-low snow accumulation, enabling trappers to travel freely.

### CONCLUSIONS AND RECOMMENDATIONS

Furbearer populations were in good condition throughout the unit. The distribution of trappers indicated trapping pressure was light and was distributed along furbearer population gradients. The harvest of furbearers was well below sustainable harvest levels and the situation is not likely to change significantly given the density of trappers, their conscientious efforts, and their access to suitable areas. As is the trend throughout the Interior, the age of trappers in the unit is increasing and very few young trappers were recruited. In the future, this may play an important role in deciding whether trapping can be a practical population regulation tool for some species. I recommend continuing the present seasons and bag limits. Population trend information for all species can continue to be gathered from trapper questionnaires, discussions with local fish and game advisory committees, and trapper interviews.

All of the management goals for the previous reporting period were apparently met. However, no efforts were made to determine the amount of interest in photographing, viewing or other uses of furbearers in the area. I assume that because furbearer population levels were relatively stable,

and the potential for all other activities was maintained. The goal of maintaining adequate populations to support traditional uses was met. The objective of monitoring harvest through fursealing was also met. Management goals and objectives will be changed to the following for the next management period:

### MANAGEMENT GOALS

- ➤ Protect, maintain, and enhance the furbearer populations and their habitats in concert with other components of the ecosystem.
- ➤ Provide for continued use of furbearers by local Alaskan residents who have customarily and traditionally depended on these populations.

### MANAGEMENT OBJECTIVE

Maintain populations of furbearers that will support a minimum level of harvest equal to the mean of the harvest of each species from RY89 through RY99.

### MANAGEMENT ACTIVITIES

- Monitor harvest through Fur Sealing Records, Fur Acquisition Reports and Fur Export Permits.
- ➤ Monitor furbearer populations by reconnaissance surveys, trapper questionnaires and trapper interviews.

### LITERATURE CITED

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Table 1 Unit 24 estimated harvest of sealed furbearer species, regulatory years 1989–1990 through 1999–2000

		Spe	ecies	
Regulatory year	Beaver	Lynx	Otter	Wolverine
1989–1990	281	128	7	22
1990–1991	380	126	5	14
1991–1992	120	158	1	30
1992–1993	78	111	6	8
1993–1994	320	123	19	29
1994–1995	140	35	11	29
1995–1996	234	30	18	26
1996–1997	654	25	41	27
1997–1998	433	36	22	28
1998–1999	221	40	3	31
1999–2000	192	102	9	29

Table 2 Unit 24 beaver, lynx, otter, and wolverine harvest, regulatory years 1989–1990 through 1999–2000

			Repor	rted harve	est									Successful
Regulatory		Sex	X		Age		Estimated	harvest	Me	thod of	take		Total	trappers/
year	M	F	Unk	Juv <sup>a</sup>	Adult	Un	Unreporte	Illegal	Trap/snare	Sho	L&S	Un	harvest	hunters
					S	k	d			t		k		
Beaver														
1989–1990				6	275	0	0	0	281	0		0	281	42
1990–1991				39	341	0	0	0	379	0		1	380	20
1991–1992				8	112	0	0	0	120	0		0	120	16
1992–1993				13	65	0	0	0	76	0		2	78	10
1993–1994				22	298	0	0	0	320	0		0	320	30
1994–1995				5	135	0	0	0	136	0		4	140	11
1995–1996				32	202	0	0	0	234	0		0	234	19
1996–1997				14	634	6	0	0	654	0		0	654	42
1997–1998				18	384	31	0	0	432	0		1	432	57
1998–1999				12	208	1	0	0	221	0		0	221	28
1999–2000				14	178	0	0	0	165	0		27	192	25
Lynx														
1989–1990				16	112	0	0	0	88	0		40	128	36
1990–1991				24	102	0	0	0	100	10		16	126	27
1991–1992				12	146	0	0	0	152	3		3	158	43
1992–1993				1	110	0	0	0	111	0		0	111	22
1993–1994				6	117	0	0	0	123	0		0	123	35
1994–1995				1	33	1	0	0	34	1		0	35	13
1995–1996				1	29	0	0	0	29	1		0	30	18
1996–1997				0	24	1	0	0	22	1		2	25	14
1997–1998				0	36	0	0	0	36	0		0	36	18
1998–1999				0	40	0	0	0	40	0		0	40	13
1999–2000				0	101	1	0	0	100	2		0	102	30

			Repor	ted harve	est									Successful
Regulatory		Sex	(		Age		Estimated	harvest	Me	thod of	take		Total	trappers/
year	M	F	Unk	Juv <sup>a</sup>	Adult s	Un k	Unreporte d	Illegal	Trap/snare	Sho t	Un k	harvest	hunters	
Otter														
1989-1990	1	0	6				0	0	4	0		3	7	4
1990-1991	2	2	1				0	0	5	0		0	5	2
1991-1992	1	0	0				0	0	1	0		0	1	1
1992-1993	0	3	3				0	0	6	0		0	6	4
1993-1994	2	2	15				0	0	5	0		14	19	9
1994–1995	2	1	8				0	0	11	0		0	11	5
1995–1996	5	3	10				0	0	17	1		0	18	8
1996-1997	11	26	4				0	0	40	0		1	41	15
1997-1998	7	5	10				0	0	21	0		1	22	12
1998–1999	0	1	2				0	0	3	0		0	3	2
1999–2000	3	0	6				0	0	9	0		0	9	5
Wolverine														
1989-1990	14	5	3				10	0	21	0		1	32	12
1990–1991	8	2	4				10	0	12	1		1	24	9
1991–1992	21	8	0				10	0	29	1		0	40	16
1992–1993	3	5	0				10	0	7	1		0	18	5
1993-1994	16	9	4				10	0	27	0		2	39	15
1994–1995	17	12	0				10	0	26	2		1	39	14
1995–1996	17	7	2				10	0	22	4		0	36	15
1996–1997	17	10	0				10	0	25	2		0	37	19
1997–1998	20	8	0				10	0	25	3		0	38	20
1998–1999	13	17	1				10	0	30	1		0	41	15
1999-2000	21	7	1				10	0	26	1		2	39	18

<sup>&</sup>lt;sup>a</sup> Juveniles: Beavers <52" (length+width); lynx <34" in length.

Table 3 Unit 24 beaver, lynx, otter, and wolverine harvest chronology by month, regulatory years 1989–1990 through 1999–2000

Regulatory		, <del>-</del>		Harvest	periods			
year	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Beaver								
1989–1990	0	15	23	3	125	31		
1990–1991	10	4	31	153	177	5		
1991–1992	0	4	5	15	80	2		
1992–1993	8	12	0	20	31	0		
1993–1994	2	7	56	88	167	0		
1994–1995	3	1	27	17	85	0		
1995–1996	11	0	3	51	153	0		
1996–1997	13	24	63	219	305	8	0	0
1997–1998	7	7	20	112	237	30	20	0
1998–1999	9	1	1	18	124	0	40	0
1999–2000	7	0	12	74	27	3	42	0
Lynx								
1989-1990	7	32	30	38				
1990-1991	4	30	26	66				
1991–1992	22	35	48	52	1			
1992–1993	28	32	24	25				
1993–1994	12	28	45	37	1			
1994–1995	6	8	12	9	0			
1995–1996	3	7	8	12	0			
1996–1997	3	7	8	6	0			
1997–1998	1	9	9	17	0			
1998–1999	3	17	4	14	0			
1999–2000	3	29	31	37	2			
Otter								
1989–1990	1	1	2	0	0	0		
1990-1991	1	0	0	4	0	2		
1991–1992	0	0	0	1	0	0		
1992–1993	0	1	0	2	3	0		
1993–1994	8	0	1	8	2	0		
1994–1995	0	0	0	1	2	0		
1995–1996	2	3	2	2	9	0		
1996–1997	6	3	6	14	12	0		
1997–1998	0	3	1	7	11	0		
1998–1999	0	0	1	0	2	0		

Regulatory				Harvest	periods			
year	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
1999–2000	0	1	0	7	1	0		
Wolverine								
1989–1990	0	7	6	9	0			
1990-1991	2	6	2	3	1			
1991–1992	7	7	6	9	1			
1992–1993	3	1	0	2	1			
1993-1994	2	3	7	10	6			
1994–1995	1	7	7	5	8			
1995–1996	3	5	5	4	5			
1996–1997	3	6	5	8	4			
1997–1998	1	9	7	3	7	1		
1998–1999	3	6	9	8	5	0		
1999–2000	2	6	6	9	4	0		

Table 4 Unit 24 estimated harvest<sup>a</sup> of unsealed furbearer species, regulatory years 1989–1990 through 1999–2000

Regulatory			Species		
year	Coyote	Marten	Mink	Muskrat	Red Fox
1989–1990	0	1489	6	0	18
1990-1991	0	756	9	0	9
1991–1992	0	945	14	0	23
1992–1993	0	252	6	2	2
1993-1994	0	609	3	1	6
1994–1995	0	97	1	0	4
1995–1996	0	161	16	0	3
1996–1997	0	1339	93	14	148
1997–1998	0	169	1	0	4
1998–1999	0	41	0	0	2
1999–2000	0	422	0	0	8

<sup>&</sup>lt;sup>a</sup> Estimates derived from Fur Acquisition Reports and Fur Export Permits.

# SPECIES MANAGEMENT REPORT

Alaska Department of Fish and Game Division of Wildlife Conservation (907) 465-4190 PO BOX 25526 JUNEAU, AK 99802-5526

### FURBEARER MANAGEMENT REPORT

From: 1 July 1997 To: 30 June 2000

### **LOCATION**

GAME MANAGEMENT UNITS: 25A, 25B, 25D, 26B, and 26C (75,000 mi<sup>2</sup>)

GEOGRAPHIC DESCRIPTION: Eastern Interior, Eastern Brooks Range, and Central and Eastern

Arctic Slope

### **BACKGROUND**

The upper Yukon River valley in eastern Interior Alaska has long been known as one of Alaska's most productive furbearer habitats. Diverse and abundant habitats include wetlands, riparian, and upland seral vegetation communities. The area supports extensive populations of a variety of furbearers, especially beaver, lynx, and fox. Furbearer abundance and species composition on the arctic slope are comparatively limited. Wolves, wolverines, and foxes are the most important species for trappers in this area.

Information on furbearers comes from pelt sealing records for beavers, lynx, river otters, and wolverines; fur acquisition reports; export reports; and trapper questionnaires. Beaver populations have been surveyed periodically in the Yukon Flats National Wildlife Refuge (YFNWR) since 1982 (McLean 1986). Limited surveys of other furbearers were conducted in the 1980s (Golden 1987).

## MANAGEMENT DIRECTION

### **MANAGEMENT GOALS**

- ➤ Protect, maintain, and enhance furbearer populations in concert with other components of the ecosystem to assure their capability of providing sustained opportunities for commercial use of furbearers.
- ➤ Provide people with sustained opportunities to participate in hunting, subsistence use, viewing, and photographing furbearers.

# **MANAGEMENT OBJECTIVES**

The management objective for furbearers is to maintain accurate annual harvest records and indices of population trends based on sealing documents and trapper questionnaires.

- > Seal furs as they are harvested and presented for sealing and analyze harvest patterns.
- ➤ Conduct trapper questionnaires and interviews as a basis for determining the status of various furbearer populations.

#### Activities Planned

- > Seal furs of selected species as they are harvested and presented for sealing to monitor harvest levels and trends (Objective 1a).
- ➤ Conduct trapper questionnaires and interviews to determine the status of various furbearer populations (Objective 1b).

### **METHODS**

We analyzed harvest data from sealing certificates, fur acquisition reports, and fur export reports. Reports from trappers were evaluated. The only population surveys conducted were annual beaver lodge and food cache surveys done by YFNWR biologists.

### RESULTS AND DISCUSSION

### POPULATION STATUS AND TREND

Population Size

Beavers, martens, lynx and red foxes are common and sometimes occur in high numbers on the Yukon Flats. Aerial surveys of beaver lodges and food caches indicated that beaver activity fluctuated from year to year, with some reduction in the number of active lodges during the late 1990s (FWS-YFNWR, unpublished data). Beaver populations have been generally stable or slightly increasing since 1982. The possible limiting effects of beaver dams on migratory whitefish populations are a concern among some local residents.

Trapper reports and harvest data indicated that lynx numbers were high during the late 1980s and early 1990s, and were again at high levels in the late 1990s. Lynx numbers and harvest were low during the mid 1990s, but were relatively high during regulatory years (RY) 1996, 1997 and 1998 (RY = 1 Jul–30 Jun, e.g., RY97 = 1 Jul 1997 through 30 Jun 1998).

Trappers reported that mink, muskrats, weasels, and wolverines were moderately abundant. Muskrats appeared to decline following cold winters and dry summers in the mid-1990s, but some increase was apparent by the late 1990s. High water during spring 1992 reestablished water levels in a number of sloughs and lakes on the Yukon Flats. Many trappers reported a subsequent increase in muskrat and mink populations.

River otters and coyotes were generally scarce. Red and arctic foxes continue to be common in Units 26B and 26C, and wolverines are still at low density throughout the area.

# MORTALITY

Harvest

# Hunting Seasons and Bag Limits.

Unit/Species	Bag Limit	Resident Season	Nonresident Season
<u>Unit 25</u> :			
Coyote	2 coyotes	1 Sep–30 Apr	1 Sep–30 Apr
Arctic Fox		No season	No season
Red Fox	2 foxes	1 Sep–15 Mar	1 Sep–15 Mar
Lynx	2 lynx	1 Nov–28 Feb	1 Nov–28 Feb
Wolverine	1 wolverine	1 Sep–31 Mar	1 Sep–31 Mar
<u>Unit 26</u> :			
Coyote	2 coyotes	1 Sep-30 Apr	1 Sep-30 Apr
Arctic Fox	2 foxes	1 Sep–30 Apr	1 Sep–30 Apr
Red Fox	2 foxes	1 Sep–15 Mar	1 Sep–15 Mar
Lynx	2 lynx	1 Nov–28 Feb	1 Nov–28 Feb
Wolverine	1 wolverine	1 Sep–31 Mar	1 Sep–31 Mar
		1	1
Trapping Seasons an	d Bag Limits.		
<u>Unit 25</u> :			
Beaver	50 beavers	1 Nov-15 Apr	
	2 beavers/day by	16 Apr-1 Jun	
	shooting		
Coyote	No limit	1 Nov-31 Mar	
Arctic Fox	No season	No season	
Red Fox	No limit	1 Nov-28 Feb	
Lynx	No limit	1 Nov-28 Feb	
Marten	No limit	1 Nov-28 Feb	
Mink and Weasel	No limit	1 Nov-28 Feb	
Muskrat	No limit	1 Nov-10 Jun	
River Otter	No limit	1 Nov-15 Apr	
Wolverine	No limit	1 Nov–15 Apr	
<u>Unit 26</u> :			
Beaver	No season	No season	
Coyote	No limit	1 Nov-15 Apr	
Arctic Fox	No limit	1 Nov–15 Apr	
Red Fox	No limit	1 Nov–15 Apr	
Lynx	No limit	1 Nov–15 Apr	
Marten	No limit	1 Nov–15 Apr	
Mink and Weasel	No limit	1 Nov–31 Jan	
Muskrat	No limit	1 Nov–10 Jun	
River Otter	No limit	1 Nov-15 Apr	
Wolverine	No limit	1 Nov–15 Apr	
		<b>±</b>	

Board of Game Actions and Emergency Orders. There were no regulatory changes during this report period. Lynx trapping seasons were changed during the 1980s. There was concern about the effects of trapping during the low phase of the lynx population cycle. Before 1985, the season dates were 1 November–15 March. The Board of Game reduced the season in Units 25A, 25B, and 25D to 1 November–28 February. The following season was further reduced to 1 December–31 January. As lynx numbers began to recover, the season was again lengthened to 1 November–28 February in RY88. This season remained in place through RY99. In contrast to more populated areas, trapping pressure was relatively light, especially following recent declines in fur prices. A tracking harvest strategy does not appear to be necessary in this area under present conditions. Beaver trapping regulations were changed in RY95 to allow beaver to be taken in Units 25A, 25B, and 25D by shooting during 16 April–1 June, with a bag limit of 1 per day. The bag limit was changed to a 2 per day in RY96. The meat of beavers taken by shooting must be salvaged for human consumption.

# Hunter/Trapper Harvest.

Beaver — Beavers were most commonly taken in and near major drainages such as the Black, Little Black, Coleen, Hodzana, Chandalar, and Christian Rivers, and Birch and Beaver Creeks. Beaver harvest in Unit 25 continued to be low compared to the late 1980s. (Table 1). The proportion of kits in the harvest increased from 17 to 28% during the report period (Table 2). The low harvest was probably related to lower pelt values and consequent reduction in trapper effort.

Lynx — Lynx harvest increased from about 200 annually in RY95 to 700 or more annually in RY96, RY97 and RY98. Harvest declined abruptly to 290 in RY99 (Table 1). The recent increase reflected the increase in snowshoe hares and lynx in the last few years.

Snowshoe hares are the primary prey of lynx. Production and survival of lynx kittens is highly dependent on the abundance of this cyclic prey species. The proportion of kittens in the harvest declined from about 22% during RY95, RY96, and RY97 and to 16% in RY98 and 24% in RY99 (Table 2). These observations agreed with trapper reports indicating that snowshoe hares were abundant in most areas during this report period. During the low phase of the hare cycle, the proportion of kittens in the harvest may be as low as 3% (Stephenson and Karczmarczyk 1989).

The harvest of lynx occurred over an extensive area, but was greatest in the Chandalar, Christian, Black, Little Black, Salmon Fork, Porcupine, and Sheenjek drainages. The largest harvests occurred in eastern Unit 25D and in Unit 25B.

River Otter and Wolverine — Otter harvest was low, probably because of lower fur prices and generally low trapping effort. Harvests ranged from 2 to 3 between RY97 and RY99 (Table 1). The low otter harvest was probably associated with reduced trapping effort for beaver during the last few years.

Most of the wolverine harvest came from Unit 25 (Table 1). Harvest was relatively stable, ranging from 24 to 48, during the past 5 years. The only area where wolverine harvest increased

Most of the wolverine harvest came from Unit 25 (Table 1). Harvest was relatively stable, ranging from 24 to 48, during the past 5 years. The only area where wolverine harvest increased in the last decade was in Unit 26B (Table 1). This was probably a result of improved access from the Dalton Highway. The number of animals taken was still small relative to the area's size.

Unsealed species — The estimated harvest of most species of unsealed furbearers has gradually declined in Unit 25 during the late 1980s and 1990s (Table 3). Fur prices declined to low levels for most species during this period. A resulting decline in trapping effort probably accounted for much of the decline in harvest. Temporary declines in furbearer population numbers may have also contributed to an unknown degree. Muskrats were historically taken in large numbers. The dramatic decline in harvest has been attributed to a drying trend. Many lakes and ponds have diminished in size or disappeared, reducing the amount of muskrat habitat. A dramatic longterm decline in mink populations was probably also related to the drying trend. Unusually cold winters and low snowfall, resulting in thick ice, also contributed to declines in muskrat populations. A flood in 1992 restored water levels in some areas allowing some increase in muskrat and mink populations. Muskrat harvests increased somewhat in 1994 and 1995 before declining in 1996. Local residents report some increase in muskrat populations during the late 1990s.

Marten harvest increased in 1996 but subsequently declined and during this reporting period was still below the levels observed in the late 1980s. Reasons for the longterm decline in marten harvest probably included the general decline in fur prices during the early 1990s and reduced trapper effort. Some observers speculate that marten populations decline during the high phase of the lynx-hare cycle. This may have contributed to especially low harvests during the early and late 1990s.

<u>Trapper Success</u>. Among sealed species, beaver and lynx were the most commonly taken animals (Table 1). The average number taken by each reporting trapper ranged from 4 to 16 (Table 2). The number of marten taken by individual trappers was unknown. Numerically and economically, martens were once the most important furbearer for most trappers. However, lynx were more important during the last few years. Comments on trapper questionnaires indicated furbearer populations were generally high and the major deterrents to higher harvests were reduced pelt values, severe weather or poor trail conditions.

<u>Harvest Chronology</u>. The harvest of beavers in Unit 25 was greatest during February and March, when over 50% of the harvest occurred (Table 4). Lynx were harvested primarily in December, January and February, corresponding to when lynx pelts were at their prime. The harvest of otters and wolverines were distributed over a broader period. Most were harvested in December, January, and February when trapping activity for other species was greatest. The small harvest of wolverines in Units 26B and 26C occurred primarily in late winter (Table 5).

<u>Harvest and Transport Methods</u>. Traps and snares were the predominant method for harvesting furbearers in Unit 25 (Table 2). Firearms were used to take a few beavers, lynx and wolverines. Snowmachines were the most common method of transportation. They were used for taking more than 80% of the furbearers in most years. A few were taken with the aid of aircraft, dogsled, skis, snowshoes, or highway vehicles (Table 6). In Unit 26B, highway vehicles were

used by trappers on the Dalton Highway and were used in connection with most of the reported harvest of wolverines (Table 7).

### CONCLUSIONS AND RECOMMENDATIONS

Although we lack quantitative data on furbearer population status in the upper Yukon and eastern Arctic, harvest data and anecdotal reports from trappers indicate that furbearer populations were not adversely affected by current harvest. Present seasons and bag limits provide reasonable trapping and hunting opportunity, while also providing for the conservation of furbearer populations. Recent declines in fur prices reduced trapping activity, reinforcing other indications that existing regulations are adequate.

Furbearer management objectives are being met. I recommend we continue to maintain communication with local trappers and work to increase the number of fur sealing agents in the area. This includes continued personal contact with trappers and efforts to communicate through the trapper questionnaire.

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Table 1 Units 25A, 25B, 25D, 26B, and 26C furbearer harvest, regulatory years 1986–1987 through 1999–2000

			Unit				
Species/Year	25A	25B	25D	26B	26C	- Unk <sup>a</sup>	Total
Beaver							
1986–1987	24	171	333	0	0	0	528
1987-1988	23	136	287	0	0	0	446
1988-1989	9	175	129	0	0	0	313
1989-1990	5	51	67	0	0	0	123
1990-1991	7	26	128	0	0	0	161
1991-1992	6	38	71	0	0	0	115
1992-1993	7	15	12	0	0	0	34
1993-1994	8	3	68	0	0	0	79
1994–1995	14	38	70	0	0	0	122
1995-1996	2	20	66	0	0	0	88
1996-1997	14	10	164	0	0	0	176
1997–1998	20	36	62	0	0	0	118
1998–1999	1	13	32	0	0	0	46
1999–2000	9	2	100	0	0	0	111
T							
<u>Lynx</u>	77	104	202	0	0	0	101
1986–1987	77	124	282	0	0	0	484
1987–1988	117	127	278	0	0	0	522
1988–1989	59	298 430	329	0	0	0	686
1989–1990	41		214	0	0	0	685 465
1990–1991	25	232	208	0	4	0	465
1991–1992	34	267	334	0	0	0	635
1992–1993	13	51	128	3	0	0	195
1993–1994	8	89	262	4	0	0	363
1994–1995	6	50	173	3	0	0	232
1995–1996	1	62	155	0	0	0	218
1996–1997	0	227	524	0	0	17	768
1997–1998	0	429	350	0	0	6	785
1998–1999	31	434	219	0	0	6	690 290 <sup>b</sup>
1999–2000	5	126	159	0	0	0	290
River Otter							
1986–1987	3	1	6	0	0	3	13
1987-1988	3	0	2	0	0	0	5
1988–1989	0	2	2	0	0	0	4
1989–1990	1	0	0	0	1	0	3
1990–1991	0	1	0	0	0	0	1
1991–1992	0	1	5	0	0	0	6
1992–1993	0	1	4	0	0	0	5
1993–1994	0	0	1	0	0	0	1

			Unit			_				
Species/Year	25A	25B	25D	26B	26C	Unk <sup>a</sup>	Total			
1994–1995	1	4	1	0	0	0	6			
1995–1996	1	2	6	0	0	0	9			
1996-1997	1	0	4	0	0	0	5			
1997-1998	0	1	2	0	0	0	3			
1998-1999	2	1	0	0	0	0	3			
1999–2000	2	0	0	0	0	0	2			
Wolverine										
1986–1987	16	19	19	0	0	0	54			
1987-1988	13	11	14	1	1	0	40			
1988-1989	13	10	21	4	1	0	49			
1989-1990	17	14	21	4	0	0	56			
1990-1991	15	14	18	5	0	0	52			
1991-1992	25	19	7	2	1	0	54			
1992-1993	16	17	6	3	1	0	43			
1993-1994	17	14	13	11	1	0	56			
1994–1995	25	18	9	8	0	0	60			
1995-1996	7	5	5	6	1	0	24			
1996–1997	14	14	7	11	0	0	46			
1997-1998	13	10	1	8	0	0	32			
1998-1999	11	11	3	8	2	0	35			
1999-2000	1999–2000 16 9 3 19 1 0 48									
<sup>a</sup> Includes 25Z unknowns; these are not included in any other analyses. <sup>b</sup> Preliminary data.										

Table 2 Units 25A, 25B, 25D, 26B, and 26C beaver, lynx, otter, and wolverine harvest, regulatory years 1986–1987 through 1999–2000

			Repo	rted har	vest		N	Method	of take			Successful
			Unk			Unk					Total	trappers and
Species/Regulatory year	M	F	sex	$Juv^a$	Adults	age	Trap/snare	Shot	$(L\&S)^b$	Unk	harvest	hunters
Units 25A, 25B, and 25D:							-					
Beaver												
1986–1987			528	79	409	40	520	0	0	8	528	unk
1987–1988			446	66	380	0	444	0	0	2	446	58
1988–1989			313	67	246	0	313	0	0	0	313	29
1989–1990			123	18	104	1	121	1	0	1	123	29
1990–1991			161	34	122	5	159	2	0	0	161	26
1991–1992			115	19	96	0	111	4	0	0	115	18
1992–1993			34	7	26	1	34	0	0	0	34	8
1993–1994			79	11	59	9	79	0	0	0	79	15
1994–1995			122	26	96	0	114	0	0	8	122	18
1995–1996			88	25	62	1	88	0	0	0	88	15
1996–1997			188	51	137	0	168	20	0	0	188	18
1997–1998			118	33	85	0	110	6	0	2	118	19
1998–1999			46	8	38	0	45	1	0	0	46	11
1999–2000°			111	24	87	0	106	5	0	0	111	12
Lynx												
1986–1987			484	100	380	4	481	1	0	2	484	unk
1987–1988			522	110	412	0	510	2	0	10	522	119
1988–1989			686	128	569	0	673	0	4	9	686	126
1989–1990			685	136	549	0	648	5	0	32	685	90
1990–1991			465	82	381	2	463	1	0	1	465	72
1991–1992			635	52	582	1	589	0	0	45	635	84
1992–1993			192	7	185	0	190	2	0	0	192	55
1993–1994			363	53	304	6	350	3	0	10	363	85
1994–1995			251	34	211	6	246	0	3	2	251	61
1995–1996			218	48	169	1	216	2	0	0	218	44
1996–1997			751	177	574	0	744	0	0	7	751	83
1997–1998			779	177	594	8	779	0	0	0	779	55
1998–1999			684	112	565	7	681	1	0	2	684	42
1999–2000°			290	57	233	0	290	0	0	0	290	28
Otter												
1986–1987	unk	unk	unk			13	12	0	0	1	13	unk
1987–1988	unk	unk	unk			5	5	0	0	0	5	5
1988–1989	1	1	2			4	4	0	0	0	4	4

			Repo	rted har	vest		N	Method	of take			Successful
			Unk			Unk					Total	trappers and
Species/Regulatory year	M	F	sex	$Juv^a$	Adults	age	Trap/snare	Shot	$(L\&S)^b$	Unk	harvest	hunters
1989–1990	1	0	2			2	2	0	0	1	3	3
1990–1991	1	0	0			1	1	0	0	0	1	1
1991–1992	0	3	0			3	6	0	0	0	6	4
1992–1993	4	1	0			5	5	0	0	0	5	4
1993–1994	1	0	0			1	1	0	0	0	1	1
1994–1995	1	2	3			6	6	0	0	2	6	4
1995–1996	4	4	1			9	9	0	0	0	9	8
1996–1997	3	1	1			5	5	0	0	0	5	5
1997–1998	1	1	1			3	3	0	0	0	3	3
1998–1999	0	0	3			3	3	0	0	0	3	2
1999–2000	1	1	0			2	2	0	0	0	2	1
Wolverine												
1986–1987	unk	unk	unk			54	48	0	1	5	54	unk
1987–1988	unk	unk	unk			40	36	0	4	0	40	29
1988–1989	31	12	1			44	42	0	1	1	44	30
1989–1990	29	19	4			52	52	0	0	0	52	31
1990–1991	27	13	7			54	45	2	0	0	47	28
1991–1992	32	18	1			51	46	5	0	0	51	27
1992–1993	28	11	0			39	36	3	0	0	39	15
1993-1994	24	9	10			43	40	2	0	1	43	10
1994–1995	25	23	4			52	51	0	0	1	52	24
1995–1996	11	6	0			17	15	2	0	0	17	11
1996–1997	23	10	2			35	33	2	0	0	35	19
1997–1998	18	4	2			24	22	2	0	0	24	13
1998–1999	13	8	4			25	24	1	0	0	25	13
1999–2000	18	7	3			28	28	0	0	0	28	9
Units 26B and 26C:												
Lynx												
1990–1991			4	0	0	4	4	0	0	0	4	1
1991–1992			0	0	0	0	0	0	0	0	0	0
1992–1993			3	0	3	0	3	0	0	0	3	2
1993–1994			4	0	4	0	4	0	0	0	4	1
1994–1995			3	0	3	0	3	0	0	0	3	1
1995–1996			0	0	0	0	0	0	0	0	0	0
1996–1997			0	0	0	0	0	0	0	0	0	0

-			Repo	rted har	vest		1	Method	of take			Successful
			Unk			Unk					Total	trappers and
Species/Regulatory year	M	F	sex	$Juv^a$	Adults	age	Trap/snare	Shot	$(L\&S)^b$	Unk	harvest	hunters
1997–1998			1	0	1	0	0	0	0	0	0	0
1998–1999			0	0	0	0	0	0	0	0	0	0
1999–2000°			0	0	0	0	0	0	0	0	0	0
Wolverine												
1988–1989	2	2	1			5	2	1	1	1	5	5
1989–1990	3	1	0			4	0	4	0	0	4	4
1990–1991	3	2	0			5	0	5	0	0	5	4
1991–1992	2	0	1			3	2	1	0	0	3	3
1992–1993	3	1	0			4	2	2	0	0	4	4
1993–1994	9	3	0			12	7	4	0	1	12	10
1994–1995	6	2	0			8	5	3	0	0	8	6
1995–1996	4	3	0			7	1	6	0	0	7	7
1996–1997	8	3	0			11	8	2	1	0	11	6
1997–1998	7	1	0			8	3	5	0	0	8	6
1998–1999	9	1	0			10	8	2	0	0	10	7
1999–2000	12	8	0			20	15	5	0	0	20	6

<sup>&</sup>lt;sup>a</sup> Beavers ≤52"; lynx ≤34" in length.

 $<sup>^{\</sup>rm b}$  L&S (land-and-shoot) refers to animals taken by hunters the same day hunters were airborne.  $^{\rm c}$  Preliminary data.

Table 3 Unit 25 estimated harvest<sup>a</sup> of unsealed furbearer species, regulatory years 1986–1987 through 1998–1999

	Regulatory year												
Species	1986-1987	1987-1988	1988-1989	1989-1990	1990-1991	1991-1992	1992-1993	1993-1994	1994–1995	1995-1996	1996-1997	1997-1998	1998-1999
Coyote	0	0	0	0	0	1	1	2	1	0	1	0	0
Arctic fox	0	2	0	0	0	1	2	5	7	0	0	0	1
Red fox	464	286	198	47	171	187	41	115	139	86	235	69	3
Marten	5707	5086	3476	2357	2070	2769	883	1234	1422	748	2233	536	152
Mink	211	80	72	32	42	46	17	34	54	81	232	26	6
Muskrat	2360	1141	657	0	23	299	167	92	784	558	126	9	138
Weasel	60	55	87	9	6	17	5	11	19	31	13	0	0
Squirrel	6	31	53	0	25	54	24	4	55	13	43	8	2

<sup>&</sup>lt;sup>a</sup> Estimates calculated by combining Fur Acquisition Reports and Fur Export Permits.

Table 4 Units 25A, 25B, and 25D beaver, lynx, otter, and wolverine harvest chronology by month, regulatory years 1986–1987 through 1999–2000

	*		• •				, ,	
Species/				Harves	t periods			
Regulatory year	Sep/Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
Beaver	_							•
1986–1987	0	44	37	51	84	286	13	
1987-1988	0	32	23	50	55	234	52	
1988-1989	0	33	27	6	60	165	16	
1989-1990	0	16	12	12	22	52	0	
1990-1991	0	4	21	52	45	38	1	
1991-1992	0	13	10	6	18	63	5	
1992-1993	0	6	5	11	0	10	2	
1993-1994	0	0	12	5	8	35	8	
1994-1995	0	13	6	7	57	19	15	
1995-1996	0	3	13	0	25	35	12	
1996-1997	0	0	15	1	31	100	15	14
1997-1998	0	16	3	10	41	39	0	6
1998-1999	0	6	5	5	4	25	0	1
1999-2000	0	19	3	3	14	64	4	4
<u>Lynx</u>								
1986-1987	0	1	273	196	2	1	0	
1987-1988	0	1	267	247	2	2	0	
1988-1989	0	77	268	137	184	0	0	
1989-1990	0	55	328	184	102	1	0	
1990-1991	0	20	200	102	93	28	0	
1991–1992	0	56	260	213	86	2	0	
1992-1993	0	27	83	30	29	2	0	
1993-1994	0	34	162	111	55	1	0	
1994–1995	1	20	112	52	44	0	0	
1995–1996	0	5	86	55	69	0	0	
1996–1997	0	13	231	302	218	2	0	
1997–1998	0	91	188	259	241	0	0	
1998–1999	0	15	208	223	238	0	0	
1999–2000	0	6	101	120	63	0	0	
River Otter								
1986–1987	0	0	6	3	1	1	0	
1987–1988	0	1	1	3	0	0	0	
1988–1989	0	0	3	0	1	0	0	
1989–1990	0	1	1	0	0	0	0	
1990–1991	0	0	0	1	0	0	0	

Species/	Harvest periods							
Regulatory year	Sep/Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
1991–1992	0	1	2	2	1	0	0	-
1992-1993	0	0	4	0	1	0	0	
1993-1994	0	1	0	0	0	0	0	
1994–1995	0	1	0	1	2	0	0	
1995-1996	0	1	4	0	4	0	0	
1996-1997	0	0	1	2	1	0	1	
1997-1998	0	0	1	1	1	0	0	
1998-1999	0	2	1	0	0	0	0	
1999-2000	0	0	0	1	0	0	1	
Wolverine								
1986-1987	0	4	16	20	5	9	0	
1987-1988	0	2	14	15	5	3	1	
1988-1989	0	5	14	6	15	4	0	
1989-1990	0	6	18	9	16	3	0	
1990-1991	1	11	13	5	16	0	0	
1991-1992	0	9	16	10	13	3	0	
1992-1993	0	4	14	3	9	9	0	
1993-1994	1	5	10	10	11	2	0	
1994-1995	0	4	13	13	13	9	0	
1995-1996	0	2	6	1	7	1	0	
1996-1997	2	1	5	9	11	7	0	
1997-1998	1	1	6	6	6	4	0	
1998-1999	0	2	6	7	7	3	0	
1999-2000	0	3	2	11	11	1_	0	

Table 5 Units 26B and 26C lynx and wolverine harvest chronology by month, regulatory years 1990–1991 through 1999–2000

Species/	Harvest periods							
Regulatory year	Sep/Oct	Nov	Dec	Jan	Feb	Mar	Apr	
Lynx								
1990–1991	0	0	0	0	4	0	0	
1991-1992	0	0	0	0	0	0	0	
1992-1993	0	0	0	2	1	0	0	
1993-1994	0	0	0	0	4	0	0	
1994–1995	0	1	2	0	0	0	0	
1995-1996	0	0	0	0	0	0	0	
1996-1997	0	0	0	0	0	0	0	
1997-1998	0	0	0	0	0	0	0	
1998–1999	0	0	0	0	0	0	0	
1999–2000	0	0	0	0	0	0	0	
Wolverine Wolverine								
1986–1987	unk	unk	unk	unk	unk	unk	unk	
1987–1988	unk	unk	unk	unk	unk	unk	unk	
1988–1989	0	0	1	2	1	1	0	
1989–1990	1	1	0	0	1	0	1	
1990–1991	3	2	1	2	0	0	0	
1991–1992	0	2	1	0	0	0	0	
1992-1993	1	0	0	0	0	2	1	
1993-1994	0	0	1	2	3	4	1	
1994–1995	1	0	0	0	0	4	3	
1995–1996	1	0	0	0	0	3	3	
1996–1997	1	2	0	0	5	1	2	
1997-1998	1	0	0	3	2	2	0	
1998–1999	0	0	1	0	3	4	2	
1999-2000	0	0	3	4	6	4	3	

Table 6 Units 25A, 25B, and 25D beaver, lynx, otter, and wolverine harvest percent by transport method, regulatory years 1986–1987 through 1999–2000

	Harvest percent by transport method							
		Dogsled,						_
Species/Regulatory		Skis, or		3- or			Highway	
year	Airplane	Snowshoes	Boat	4-Wheeler	Snowmachine	ORV	vehicle	Unknown
<u>Beaver</u>								
1986-1987	1	8	0	0	92	0	0	0
1987-1988	6	4	0	0	90	0	0	0
1988-1989	0	8	0	0	92	0	0	0
1989-1990	0	2	0	0	98	0	0	0
1990-1991	21	3	0	0	76	0	1	0
1991-1992	0	0	0	0	98	0	0	2
1992-1993	0	0	0	0	94	0	0	6
1993-1994	0	0	0	0	100	0	0	0
1994-1995	2	0	0	0	88	0	0	10
1995-1996	0	9	0	0	89	0	0	2
1996-1997	0	1	11	0	88	0	0	0
1997-1998	0	6	0	0	87	0	5	2
1998-1999	0	13	0	0	83	0	0	4
1999–2000	0	15	0	0	83	0	2	0
<u>Lynx</u>								
1986–1987	3	8	0	0	89	0	0	0
1987-1988	3	10	0	0	86	0	0	0
1988-1989	13	7	1	0	80	0	0	0
1989-1990	2	8	0	0	88	0	1	0
1990-1991	2	7	0	0	91	0	0	0
1991-1992	1	9	3	0	82	0	0	5
1992-1993	3	4	0	0	88	0	1	4
1993-1994	1	5	0	0	92	0	1	1
1994-1995	1	6	0	0	91	0	0	2
1995-1996	4	4	0	0	90	0	0	3
1996-1997	4	7	1	0	87	0	0	1
1997-1998	7	8	0	<1	84	0	<1	<1
1998-1999	<1	16	<1	<1	82	0	<1	<1
1999–2000	22	6	0	0	72	0	0	0

Species/Regulatory	Harvest percent by transport method									
	Airplane	Dogsled, Skis, or Snowshoes	Boat	3- or 4-Wheeler	Snowmachine	ORV	Unknown			
year River Otter	Airpiane	Showshoes	Doat	4- W Heelel	Showmachine	OKV	vehicle	Ulikilowii		
1986–1987	0	9	0	0	91	0	0	0		
1987–1988	0	20	0	0	80	0	0	0		
1988–1989	0	25 25	0	0	75	0	0	0		
1989–1990	0	0	0	0	100	0	0	0		
1990–1991	0	100	0	0	0	0	0	0		
1991–1992	0	0	0	0	100	0	0	0		
1991–1992	0	0	0	0	100	0	0	0		
1992–1993	0	0	0	0	100	0	0	0		
1994–1995	0	0	0	0	50	0	0	50		
1995–1996	0	0	0	0	100	0	0	0		
1996–1997	0	0	0	0	100	0	0	0		
1990–1997 1997–1998	0	0	0	0	100	0	0	0		
1998–1999	0	67	0	0	33	0	0	0		
1999–2000	0	0	0	0	100	0	0	0		
1777 2000	O	V	U	O	100	O	O	O		
Wolverine										
1986–1987	12	16	0	0	71	0	0	0		
1987-1988	10	18	0	0	69	0	3	0		
1988-1989	8	10	0	0	82	0	0	0		
1989-1990	2	17	0	0	81	0	0	0		
1990-1991	2	20	0	0	77	0	0	0		
1991-1992	2	14	0	0	80	0	0	4		
1992-1993	5	10	0	0	64	0	0	21		
1993-1994	7	7	7	0	77	0	0	2		
1994-1995	4	4	0	0	81	0	0	11		
1995-1996	0	0	14	0	71	0	14	0		
1996-1997	14	0	3	0	71	0	0	11		
1997-1998	4	33	0	0	63	0	0	0		
1998-1999	0	20	0	0	60	0	0	20		
1999-2000	7	7	0	0	86	0	0	0		

Table 7 Units 26B and 26C lynx and wolverine harvest percent by transport method, regulatory years 1990–1991 through 1999–2000

	Harvest percent by transport method									
Species/Regulatory		Dogsled, Skis, or		3- or			Highway			
year	Airplane	Snowshoes	Boat	4-Wheeler	Snowmachine	ORV	vehicle	Unknown		
Lynx										
1990–1991	100	0	0	0	0	0	0	0		
1991-1992	0	0	0	0	0	0	0	0		
1992-1993	0	0	0	0	0	0	67	33		
1993-1994	0	0	0	0	0	0	100	0		
1994-1995	0	0	0	0	0	0	100	0		
1995-1996	0	0	0	0	0	0	0	0		
1996-1997	0	0	0	0	0	0	0	0		
1997-1998	0	0	0	0	0	0	0	0		
1998-1999	0	0	0	0	0	0	0	0		
1999–2000	0	0	0	0	0	0	0	0		
Wolverine										
1990–1991	25	25	0	0	0	0	50	0		
1991-1992	0	33	0	0	33	0	33	0		
1992-1993	33	0	0	0	33	0	0	33		
1993-1994	0	0	0	0	45	0	54	0		
1994-1995	13	0	0	0	25	0	38	25		
1995-1996	0	0	14	0	71	0	14	0		
1996-1997	0	0	0	0	45	0	55	0		
1997-1998	0	25	0	0	50	0	25	0		
1998–1999	0	20	0	0	50	0	30	0		
1999–2000	5	10	0	0	55	0	30	0		